The Reconstruction of Proto-Huastecan

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Elizabeth Norcliffe

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List of Abbreviations

Chc	Chicomuceltec
Chl	Chol
Chn	Chontal
Chu	Chuj
Cl Sp	Classical Spanish
Hua	Huastec (all dialects)
Kaq	Kaqchikel
Mn Sp	Modern Spanish
Mop	Mopan
Mot	Motocintlec
MZ	Miche-Zoque
Nah	Nahuatl
PM	Proto-Mayan
PH	Proto-Huastecan
Pot	Potosí Huastec
Q'an	Q'anjobal
Toj	Tojolabal
Tzo	Tzotzil
Tzu	Tz'utujil
Vcz	Veracruz Huastec
Yuc	Yucatec
Zap	Zapotec

T	Termer (1928)
S	Sapper (1912)
TZ	Tapia Zenteno (1767)
K	Kaufman (1964)
KN	Kaufman and Norman (1984)
A	Andrade (from Zimmerman 1955)

Abstract

The broad objective of this investigation is a phonological and lexical reconstruction of Proto-Huastecan, the proto-language from which the Huastecan languages, Chicomuceltec and Huastec, are descended. The thesis outlines the probable sound changes that took place in the language's evolution, from its beginnings in Proto-Mayan to its split into the two daughter languages. The methodology employed to reconstruct Proto-Huastecan is the Comparative Method, the established method of historical linguistic reconstruction. Because Chicomuceltec is extinct, and is recorded only in sources which do not accurately represent its phonology, this study also encompasses the philological interpretation of the Chicomuceltec transcriptions. To place the reconstruction within the broader context of Huastecan linguistic prehistory, an overview of scholarship pertaining to Huastecan's placement in Mayan sub-grouping, and of the diversification of Chicomuceltec and Huastec is also presented.

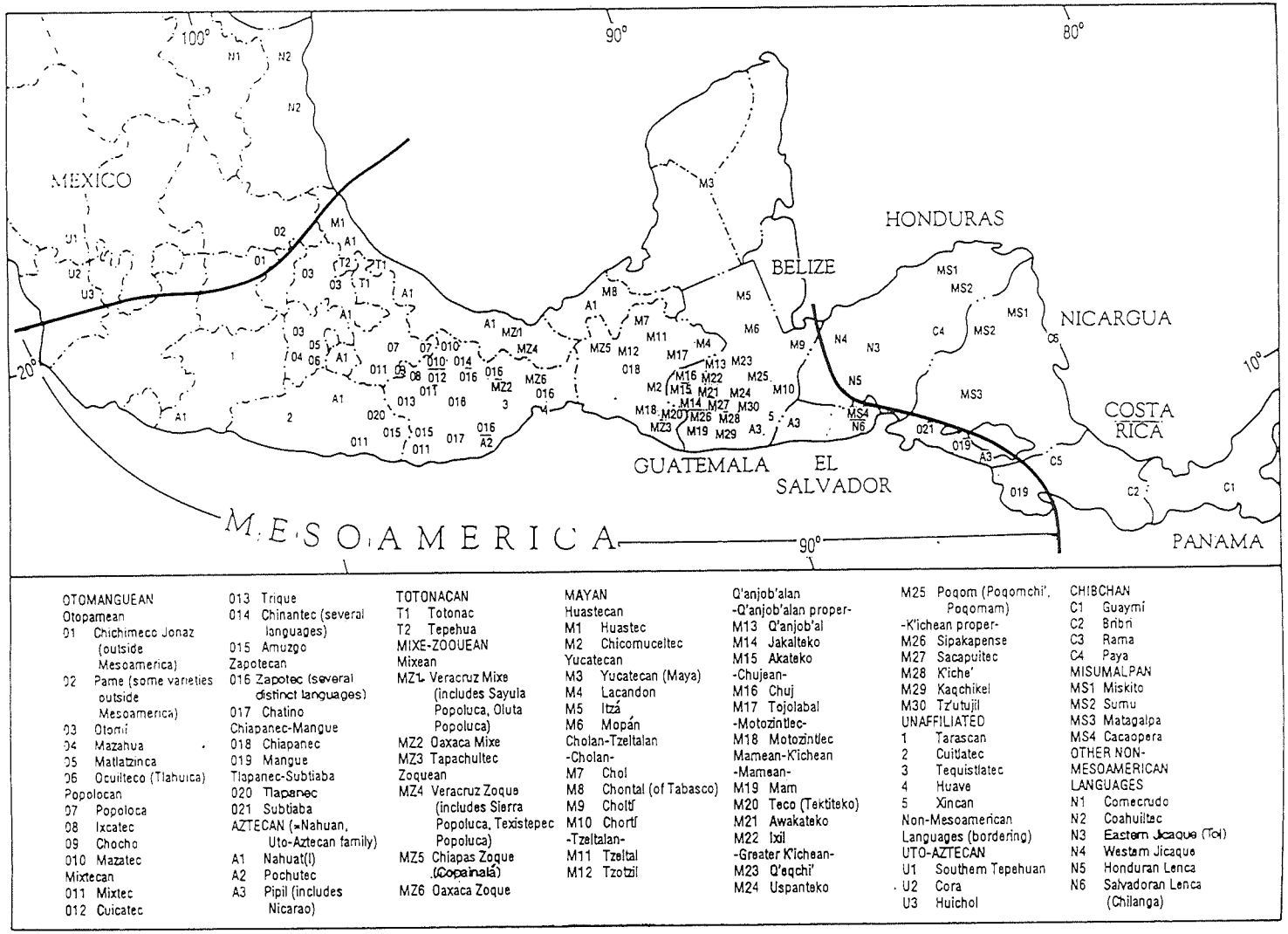

Figure 1. Mesoamerican languages. M1 = Huastec; M2 = Chicomuceltec

(from Campbell 1997:362, redrawn from Campbell et al. 1986:538-42)

Chapter One

Introduction

1.1 Mayan

There are today some 30 Mayan languages still spoken, by about 2,000,000 people in Guatemala, Belize, Honduras and Southern Mexico. Only one Mayan language, Huastec, of the Huastecan branch, is located outside of this geographical area, in north-eastern Mexico (cf. figure 1). Two languages are now extinct: Choltí and Chicomuceltec, the latter Huastec's closest sister.

The Mayan language family is generally divided into five major subgroupings: Huastecan, Yucatecan, Cholan-Tzeltalan, Greater Q'anjobalan and Eastern Mayan. It is commonly believed that Huastecan was the first subgroup to split off from Proto-Mayan[1] (Campbell 1997:165), followed later by the Yucatecan branch, and then the other remaining groups, though some controversy remains over the higher level branchings (Campbell and Kaufman 1985:188).

1.2 Huastecan

Huastecan consists of two languages, Huastec, located in north-eastern Mexico in the states of San Luis Potosí and Veracruz, and Chicomuceltec, now extinct, from Chicomuselo in Chiapas, southern Mexico. Chicomuceltec and Huastec are closely related, with, according to Kaufman, no more than 1000 years of divergence (Kaufman 1980:101). Much of their historical phonological development is the same. These languages do not appear to be closely related to any other Mayan languages, forming a completely separate sub-group on their own. There have been various proposals of a special relationship between Huastecan and Western Mayan languages (Yucatecan,

[1] c. 2200 B.C, according to glottochronological calcations, which most linguists do not accept.

Tzeltalan, Ch'olan) (Campbell 1977, Fox 1978), but the phonological and lexical similarities on which these suggestions are based probably owe to contact rather than to a common genetic history. The grammar and vocabulary of Huastecan differ markedly from the rest of the Mayan language branches, which suggests a comparatively great time depth for its separation from the rest of the family.

Huastec is spoken in the Huaxteca, in the states of San Luis Potosí and northern Veracruz. The language has three main dialects, with a probable time depth of no more than 400 years (Kaufman 1985:473). The Western or Potosíno (Pot) dialect is spoken by around 48,000 people in the towns of Ciudad Valles, Aquismón, Huehuetlán, Tancanhuitz, Tanlajás, San Antonio, Tempamolón, Tanquian and Tancuayalab, all in the state of San Luis Potosí. The central (Vcz) dialect is spoken by around 22,000 people in the northern part of the state of Veracruz, in Tempoal and Tantoyuca. The eastern (Otontepec) dialect is spoken by around 12,000 people, also in the north of Veracruz state, in Chontal, Tantima, Tancoc, Chinampa, Naranjos, Amatlán and Tamiahua. This last dialect has only recently been identified by Kaufman as separate from the central Veracruz dialect, divergent from it in certain phonological reflexes and in the structure of its plural pronouns, which preserves the distinct affixes for plural pronouns inherited from Proto-Mayan, while the other dialects have the innovative plural pronouns composed of singulars plus a plural affix. The dictionaries, wordlists and grammars available for Huastec to date represent only the Potosí and Veracruz dialects, and it is to these which are referred in the bulk of this work. The principal phonological difference between the Pot and Vcz dialects is in their reflexes of the palato-alveolar and dental affricates (Pot has *[č]* where Vcz has *[ts];* Vcz has *[č]* where Pot has *[ts]*).

Grosser Lerner (1991:18) notes that the speakers of Huastec (at least in the San Luis Potosí area) do not refer to their own language as '*Huastec*', but rather as *Tének* (*tehee?* or *tee?* + *inik* 'here man', or 'man of here'), reserving the name *Huaxteca* for the geographical characterisation of the area. The term 'Huastec' will be used throughout this work, however, as it is the name by which the language is commonly known in linguistic studies. The word 'Huastec' is a hispanicisation of the Nahuatl *cuexteca* (derived from the toponym *Cuextlán* 'lugar de cueros adobados, finamente curtidos' ('place of tanned leathers, finely cured'). The Cuextecas may have been one of the groups

which split off from the original peoples of the mythical Aztlan (from which derives *Aztec*) to settle in what is now the Huasteca area, imposing their name on the region and its inhabitants (Grosser Lerner 1991:18).

Little is known about the now extinct Chicomuceltec (Chc) language. In colonial times the name by which the language was known was *Cabil* (or *Cavil*) (Campbell 1988:208). During that period it was spoken in Chicomuselo (often spelled Chiquimucelo), Comalapa, Yayahuita and Utatan. The name *Cabil* may come from the Tzeltal name of the town of Chicomuselo, which is *cahbha* (as listed in the Domingo de Ara Tzeltal dictionary of 1571). Ara translates this name as *braza de agua o de rio* (arm of water or river), which, as Campbell (1988:208) notes, fits with the geographical location of Chicomuselo, as it lies at the confluence of two rivers, the Yayahuita and the Tachinula or Rio Chicomuselo. The only colonial document in Chicomuceltec (two sides of a confessional written in both Chicomuceltec and Spanish, from 1775) gives the name *Cotoque* for the language. Kaufman (1976:102) and Campbell (1988:208) believe this to be an error on the part of the document's author, however. The title page of the 1775 document has a reference to Tachinulla. In 1775 Motozintlec was spoken in Tachinula, and speakers of this language referred to it as *qato?k'* 'our language' (Campbell 1988:208). It is speculated that the author may have mistakenly inferred *Cotoque* as the name of Chicomuceltec, instead of Motozintlec. Kaufman uses *Cotoque* to refer to Motozintlec-Tuzantec (1976:102).

The geographical separation of Huastec and Chicomuceltec forms an intriguing puzzle for Mayan linguistics. Huastec is located several hundred kilometres from Chicomuceltec, and indeed from the rest of the Mayan languages, which are located in the regions of Southern Mexico (Chiapas, Tabasco and the Yucatan peninsula), Guatemala, Belize and Honduras. Different accounts have been postulated for how Huastec came to be so geographically isolated from its sister language. Kaufman (1980:101) maintains that Huastec has remained in its location in the north-east for more than 1000 years, and that Chicomuceltec split off from Huastec in this area, and subsequently entered the Mayan region as an "intrusive group". Alternatively, Chicomuceltec may have remained in its present location, while Huastec migrated north-west from the main Mayan territory,

or the two may have split somewhere in the area in between, each moving in opposite directions (Campbell 1988)[2].

1.3 The study

1.3.1 The Comparative Method

The comparative method is the standard method of reconstruction in historical linguistics. Sound correspondences are established for each phoneme in the daughter languages in question through comparing cognate sets, and the most likely proto-sound is reconstructed for each phoneme. Given that one of the languages, Chicomuceltec, is extinct, and represented only in sources which do not represent its phonology in fully accurate ways, part of the task of determining the sound correspondences in this case involve the philological interpretation of the Chicomuceltec sounds represented in the sources.

Once sound correspondences have been established, various factors can help to determine which is the most plausible reconstruction in each case: the directionality of certain sound changes (some sound changes typically move in one direction), the criterion of economy (sound changes that involve the smallest number of changes), the number of languages featuring a certain sound (where a sound features in the majority of descendent languages this is typically (though not always) the reconstruction chosen), the phonological fit of the proto-sounds in the phonological system of the proto-language as a whole, and the typological fit of the proto-sounds according to typological norms and linguistic universals (See Campbell 1998; Crowley 1997 and Fox 1995 for extensive treatment of the comparative method).

[2] See chapter 5 for a more detailed account of theories on Huastecan migration

1.3.2 Outline

Chapter two provides a comparative sketch of the phonological systems, the syllable structure, accent and various relevant aspects of the morphophonemics of the two languages. Chapter three gives an analysis of the sound correspondences between the two languages by means of the comparison of cognate sets, with exceptions to the general correspondences discussed. The philological interpretation of the Chicomuceltec sources is undertaken in this chapter, with issues relating to problematic aspects of Chicomuceltec orthography addressed as they arise. Chapter four compares Proto-Mayan forms with Huastec and Chicomuceltec cognate sets in order to establish the sound changes that took place in the phonological development from Proto Mayan to Proto-Huastecan, and from Proto-Huastecan to Huastec and Chicomuceltec. Chapter five places this study within the broader context of Mayan historical linguistics by providing an overview of the scholarship pertaining to subgrouping and language contact involving Huastecan. Appendix I compares certain Chicomuceltec affixes and participles that occur in Termer and Sapper's vocabulary lists to similar Huastec forms, in order to identify their meaning or function, where possible. Appendix II presents complete lists of the Chicomuceltec vocabulary collected by Termer and Sapper in the original orthographies used by them, alongside a standardised orthographic version which conforms to the orthography used throughout this work for all Huastec, Proto-Huastec and Proto-Mayan forms. Notes on various of the vocabulary items and inconsistencies arising from the scribal practices of Sapper and Termer are provided where relevant. Appendix III presents a complete, comparative word-list of all Chicomuceltec vocabulary with Huastec correspondences and reconstructed Proto-Mayan (PM) and Proto-Huastecan (PH) forms. Appendix IV provides charts detailing phoneme co-occurrence constraints for combinations affricates and stops (plain and glottalised) and fricatives in CVC morphemes in both major dialects of Huastec (the data for Chicomuceltec are too limited to include Chicomuceltec charts), listing examples of vocabulary items for the phoneme combinations where co-occurrence constraints do not operate.

1.4 The sources

1.4.1 Chicomuceltec

There are various sources in existence on extinct Chicomuceltec, collectively producing a corpus of around 500 lexical items. The only colonial source is the "Confesionario en lengua Cotoque que es la que se habla en Chicomucelo" [Confessional in the Cotoque language which is what is spoken in Chicomucelo] (1775) mentioned above, two sides of a confessional in Spanish and Chicomuceltec. This was re-discovered in 1953 in the Bibliothèque Nationale of Paris by Zimmermann. It represents the earliest documentation of the Chicomuceltec language, and provides precious, though limited examples of Chicomuceltec syntax.

The German geographer Carl Sapper, in 1894, was the first to record the vocabulary of Chicomuceltec. In 1897, in an appendix to his work "das Nördliche Mittelamerika" he published a list of 169 Chicomuceltec words, a section of his transcriptions taken from two inhabitants of Chicomucelo. In a later article published in 1912 which reprinted this list, he gives a cursory sketch of some of the sound correspondences that can be observed from his Chicomuceltec word-list and the respective Huastec vocabulary[3]. His word lists are organised semantically and include comparative lists of Huastec, Motocintlec, Jakalteko and Mam vocabulary, along with German glosses. He draws particular attention to the close relationship between Chicomuceltec and Huastec, noting:

> "trotz dieser grossen Entfernung [zwischen Chicomuceltec und Huastec] kann an der nahen verwandtschaft nicht gezweifelt werden, da trotz vieler Abweichungen im Sprachschatz doch die Zahl der Uebereinstimmungen zwischen Chicomucelteca und Huasteca im Gegensatz zu allen übrigen Sprachen der Mayafamilie sehr beträchtlich ist" (Sapper, 1912:302).
>
> [despite this great distance [between Chicomuceltec and Huastec], the close relationship cannot be doubted, given that, despite many divergences in the vocabulary, the number of

[3] Sapper's Huastec vocabulary was taken from Stoll (1884)

> agreements between Chicomucelteca and Huasteca is very considerable, in contrast to all the other languages of the Mayan family] [My translation].

Sapper's remaining word lists had been left unpublished. They resurfaced in the Lateinamerikanischen Bibliothek of Berlin in 1953 and were published by Zimmermann. This Sapper manuscript contained 161 words not published in "das Nördliche Mittelamerika", 75 of which were completely new, the others confirming forms later recorded by Franz Termer in the 1920s. The Sapper manuscript also contained 17 short sentences, which along with the Confesionario, provides the sum record of Chicomuceltec syntax.

Following the line of Sapper's work, Franz Termer visited the region in 1926, but by this stage could find only three inhabitants in the village who were still familiar with Chicomuceltec, two men and a woman, all over seventy years old. The rest spoke either the neighbouring Mayan languages (Motozintlec, Mam) or Spanish. The three familiar with Chicomuceltec no longer spoke the language among themselves, but rather communicated in Spanish. Termer was able to record 284 words, taken from the two men (the woman was not willing to be interviewed), some of which had already been recorded by Sapper, as well as 28 number-words. He states in his article that he uses Spanish orthography in transcribing the Chicomuceltec words. His word lists are presented according to semantic groups, with comparative lists of Huastec vocabulary (taken from Stoll) and German translations.

Kroeber (1944), following up on Sapper's observations regarding the relationship between Huastec and Chicomuceltec, published an article on the issue, drawing from Sapper's data. He lists two series of words, the first shared by Huastec and Chicomuceltec, but not by other Mayan languages, and a second series shared by Huastec, Chicomuceltec and other Mayan languages, but where the relationship between Huastec and Chicomuceltec is obviously closer. The article thus confirmed Sapper's initial observations regarding the similarity of Chicomuceltec and Huastec relative to other Mayan languages.

Zimmerman (1955) provides the first thorough collation and examination of all material pertaining to Chicomuceltec. He presents a complete word-list of all the Chicomuceltec vocabulary collected

by Sapper and Termer, with comparative lists of Huastec taken from Andrade's field notes on microfilm from the 1930s. He also refers to Larsen and Pike's field notes from 1949 and Tapia Zenteno's 18th century lists. In the same article he publishes the Chicomuceltec Confesionario, with a translation and attempted explanation of certain Chicomuceltec vocabulary items from this. He closes the article with a sketch of certain sound correspondences apparent between Huastec and Chicomuceltec.

In the 1970s several field trips to Chicomucelo were made by linguists in order to ascertain whether or not Chicomuceltec was an extinct language. Canger went in 1970 and Campbell in 1972 and 1976. These trips confirmed that the language is no longer spoken. Canger and Campbell were able to find only a handful of individuals who still recalled a few words. These informants did not usually separate real Chicomuceltec forms from words in neighbouring languages that they may have been in contact with, such as Mam, Tzeltal and Tojobal.

The fact that there are no more native speakers of Chicomuceltec means that, unless hitherto unknown field notes or colonial documents are discovered, it is unlikely that further materials will be forthcoming that might shed light on the problematic aspects of the extant sources; in particular the difficulty lies in the lack of any reliable phonetic transcription in the work of Sapper and Termer. Although they both state that they employ Spanish orthography, they do so with no particular accuracy, with the result that there is often neither any internal consistency within the separate word lists for certain sounds, nor any regular orthographic correspondence between the two word lists. This is particularly so in the case of sounds that do not occur in German, for example word-initial *w* which is variously transcribed in the Chicomuceltec sources as <*v*, *vu*, *ju*, *ua*, *ue*, *uo* and *hu*>. *P* and *w* are sometimes given as <*b*>, glottalised consonants and glottal stops are seldom marked and there is no indication of vowel length.

1.4.2 Huastec

The earliest colonial document on Huastec still in existence is Tapia Zenteno's "Noticia de la lengua Huasteca" (1767). Although at least three documents were written in or about Huastec in the

16th century, sadly none of these has survived. These were "La Doctrina" of Fray Juan de Guevara (1548), "La Doctrina y Arte" of Fray Juan de la Cruz (1571) and the "Arte, Vocabulario, Catecismo, Confesionario Y Sermones" of Fray Andrés de Olmos. Of these, only the first two were published, and except for the Doctrina of Fray Juan de la Cruz, from which, according to Wagner (1940) four examples are conserved, all are lost.

Tapia Zenteno's work includes a grammar, vocabulary lists, two doctrines and a manual of sacraments. The vocabulary and texts are in Spanish and Huastec. The Noticia was written while Tapia Zenteno was living in Potosí, and it is to this region and dialect which is principally referred. Tapia Zenteno's dictionary consists of around 2000 words, structured alphabetically. He does not often make any distinction between long and short vowels. Frequently <*m*> is identified with <*n*>, finally or between vowel, and, occasionally, <*z*> is confused with <*tz*>. His orthographic system also lacks symbols for representing glottalised consonants or syllables.

Various dictionaries, word-lists and grammars of or including Huastec were published in the nineteenth and twentieth centuries. Stoll's Zur *Ethnographie der Republik Guatemala* from 1884 includes a comparative word list of Mayan languages including Huastec and a section on Huastec which contains a bibliography of works pertaining to the language and a brief discussion of Huastec's connection to the rest of the Mayan family. In the twentieth century field work and research on Huastec has been undertaken principally by Manual J. Andrade, Norman A. McQuown, Raymond and Kay Larsen and Terrence Kaufman. Andrade's field notes and transcribed texts on the Potosí dialect are on microfilm at the University of Chicago Library. McQuown's work includes a dictionary, morpheme list and a sketch of the phonetics, phonology, morphology and grammar of the Potosí dialect (1984). Raymond and Kay Larsen have collected materials on the Potosí dialect, including a translation of the New Testament and a literacy booklet. Larsen has also compiled a Huastec-Spanish Spanish-Huastec dictionary (Potosí dialect). The main source for the Veracruz dialect is Kaufman, who has detailed, unpublished file cards of Veracruz Huastec vocabulary with English/Spanish translations compiled from fieldnotes. I draw from Kaufman's vocabulary for the Veracruz dialect and Larsen and Andrade (the latter taken from

Zimmerman) for the Potosí dialect. I also refer to Tapia Zenteno when his forms differ from the contemporary dialects.

Studies of aspects of Huastec phonology, morphophonology/morphology have been undertaken by Larsen and Pike (1949), McQuown (1984), Ochoa Peralta (1984), Constable, (1989) and Grosser Lerner (1991). Kaufman (1980, 1984) and Campbell (1988) have provided the most extensive treatment of Huastecan historical phonology. Fox (1978) and Robertson (1993) have also dealt with elements of historical phonology in Huastecan.

1.5 Note on representations

The orthography adopted here conforms to that conventionally used by Mayanists, with the exception of ȼ for which I use *ts*, and the word-initial glottal stop, which I omit because it does not represent contrast or distinctive opposition in Huastecan or Proto-Mayan. Accordingly, *ʔ* represents the glottal stop, *ts* the voiceless alveolar affricate, *č* the alveo-palatal affricate, *θ* the interdental fricative, *š* the alveo-palatal fricative, *t̂* the palatalised stop, *ṭ* the retroflex stop, *q* the uvular stop and *x* the velar fricative. The sounds represented by *t, ts, t̂, ṭ, č, k* and *q* have the glottalised counterparts *t', ts', t̂', ṭ', č', k'* and *q'*. Proto-Mayan *b'* is imploded. Kaufman's early (1964) Proto-Mayan reconstructions use t^y for *t̂*. I keep this where I refer to these reconstructions. Other symbols have the standard values. When jointly discussing pairs of glottalised and plain stops or affricates, I use the convention of bracketing the apostrophe to indicate that both the plain and glottalised form are meant (e.g. *k(')*).

I have altered the orthographies of sources other than Kaufman's and Campbell's (particularly that of Larsen, whose dictionary I refer to for the Potosí dialect, and also Andrade to whom I occasionally refer) to that of the above for ease of comparison. Proto-Mayan reconstructed forms (indicated with an initial **) are taken from Campbell (1988) unless otherwise stated: [K] refers to Kaufman's 1964 reconstructions, [KN] to Kaufman and Norman's 1984 reconstructions. A single initial asterix (*) indicates a Proto-Huastecan form, unless otherwise stated. Tapia Zenteno's vocabulary is represented in its original form in pointed brackets < >. The Chicomuceltec

vocabulary is either represented in pointed brackets, in which case the orthography is that found in the original source, or, if there is no ambiguity in the symbols used in the transcription, then I have standardised the spelling to conform to that of the Huastec data. Glottalisation, however, is only marked in the standardised forms if it was marked in the original sources. Accordingly, in Chapter three, where the philological interpretation of the original orthographies is undertaken, Chicomuceltec forms are always given in pointed brackets. In chapter four the Chicomuceltec forms are generally presented in the standardised format, unless there is a particular ambiguity. Where the two Chicomuceltec sources differ in their transcriptions both original forms are given. A complete word list with the original Chicomuceltec orthographies and the corresponding standardised forms may be found in appendix I.

Chapter Two

The phonological systems of Chicomuceltec and Huastec

2.1 Huastec and Chicomuceltec phonemic inventories

Despite their geographical separation, Chicomuceltec and Huastec are closely related. Kaufman (1980:101) has placed the time depth for the split of Huastecan at no more than 1000 years. The two languages are very similar phonemically, as their respective phonemic inventories below illustrate. The greatest difference between them lies in Huastec possessing a greater number of sounds overall in its phonemic inventory: Huastec, but not Chicomuceltec, has plain and glottalised *ts(')* and also *b*.

Huastec phonemic inventory	Chicomuceltec phonemic inventory
p t ts č k k^{w} *t' ts' č' k' k^{w} ʔ* *b* *m n* *θ š h* *l* *w y* *i(:) u(:)* *e(:) o(:)* *a(:)*	*p t č k k^{w}* *t' č' k' k^{w} ʔ* *m n* *s š h* *l* *w y* *i(:) u(:)* *e(:) o(:)* *a(:)*

Figure 2. Huastec and Chicomuceltec phonemic inventories

2.1.1 Glottalisation

Huastec, like other Mayan languages, has plain and glottalised pairs of stops and affricates in opposition. In the Chicomuceltec sources glottalisation is seldom marked, though there are some indications that Chicomuceltec did in fact have a set of glottalised consonants, first in light of the fact that the plain/glottalised contrast has not been lost in any other Mayan language, and, more importantly, from various of the vocabulary items recorded, which contain certain graphemes that may have been mishearings of glottalised consonants or the glottal stop. Admittedly the transcription of glottalised consonants in Chicomuceltec is by no means consistent, and only shows up on occasion with certain phonemes, but there are suggestions that at times the transcribers were attempting to record distinctions between glottalised and plain pairs of stops and affricates. This is most apparent with *k'*, where Termer has the following in Chicomuceltec (the glottalised Veracruz and Potosí forms are included here for comparison):

Chc	Vcz	Pot	
<k'a'k>	*k'a:k'*	*k'a:k'*	'hot'
<c'oon>	*k'o?on*	*k'o?on*	'navel'
<k'ij>	*k'ih*	*k'ih*	'day, feast day'
<tak'in>	*tak'in*	*tak'in*	'silver'

And also in certain cases of *?:*

Chc	Vcz	Pot	
<uit>	*wi?*	*wi?*	'mouth'
<chiic>	*či?ik*	*tsi?ik*	'sweet'
<c'oon>	*k'o?on*	*k'o?on*	'navel'

The final *t* in Chc *<uit>* 'mouth' may be a glottal stop misheard. The double *ii* in Chc *chiic* 'sweet' and the double *o* in *<c'oon>* may similarly represent the glottal stop found in the Huastec correspondences, in particular since no vowel clusters are permitted in Mayan languages. It may otherwise be an attempt at transcribing a long vowel.

2.1.2 Huastec and Chicomuceltec consonants

Both Huastec and Chicomuceltec lack palatalised alveolar phonemes found in some other Mayan languages as well as back uvular stops[4]. Both languages have a labialised velar pair *k*^{w} and *k'*^{w}, not present in the rest of the Mayan language family, though again in Chicomuceltec this is not always marked. Huastec has *θ* where Chicomuceltec has the expected *s* found in most Mayan languages. Huastec, but not Chicomuceltec, has *b*. Nieves and Leopoldo (1987:1027) have observed that in the La Pimienta community of Potosí Huastec, *w* is realised as *[b*^{w}*]*. Kaufman (1985:475) notes that *b* allophonics vary in the different Huastec dialects: Potosí devoices finally, Otontepec merges *b* with *p* finally, Veracruz, Potosí and Otontepec have *[ß]* before vowels and Chontla (spoken in one town within the Otontepec dialect region and generally classed with Otontepec) has *[b']* initially and before vowels.

	#__V	*CV__V*	*V__#*
Vcz	*[b]*	*[ß], [b]*	*[ß], [b]*
Pot	*[b]*	*[ß], [b]*	*[p]* unreleased
Otontepec, exc Chontla	*[b]*	*[ß],*	*[p]*
Chontla	*[b']*	*[b']*	*[p]*

Figure 3. *b* allophonics in the Huastec dialects

Chicomuceltec *w* may also have had a fricative quality, in light of the fact that it is occasionally transcribed as *b* (cf. 3.1.2).

Huastec, but not Chicomuceltec, has *ts*. The Veracruz dialect of Huastec has *ts(')* in correspondence with Potosí *č(')* (and Chicomuceltec *t*). Veracruz *č(')* corresponds to Potosí *ts(')* (and Chicomuceltec *č*). Early loans from Spanish to Potosí have *ts* for Spanish *č*, indicating that the sound shift from *č* to *ts* occurred in Potosí sometime after the first contact with Spanish (c. 1530).

kutsi:l 'knife' < Cl Sp *kučil*^{y}*o*
matse:t 'machete' < Cl Sp *mačet(e)*

[4] I am presuming from the Chicomuceltec sources that the <*k*> and <*k'*> transcribed matches Huastec *k* and *k'*.

motso? 'maimed' < Cl Sp *močo*

Tapia Zenteno, writing on the Potosí dialect, (1767) has <tz> (i.e. ts) in correspondence with Vcz *č*, which indicates that this sound shift in the Potosí dialect had taken place by the mid 18th century. *č* in modern Spanish loans into Potosí are retained in the dialect as *č*:

ko:čeh 'car' < Mn Sp *coče*

2.1.3 Huastec and Chicomuceltec vowels

Both Huastec and Chicomuceltec have five vowels, *i, e, u, o, a.* Huastec has contrastive vowel length, like many Mayan languages. This is illustrated, for example, in the pair: *ič* 'chile' and *i:č* 'moon'. In Chicomuceltec vowel length is not marked in the sources, except possibly on occasion where a double vowel is transcribed. This is extremely inconsistent and since it is not clear that this is actually representing vowel length, it cannot be ascertained whether or not contrastive vowel length did also exist in Chicomuceltec.

2.2 Syllable structure

The canonical syllable shapes that occur in Huastec and Chicomuceltec are: CV and CVC, where V can be either long or short. Some authors also include V and VC if they disregard the predictable phonetic glottal stop before word-initial vowels. CV and CVC appear in initial, medial or final position in the word. Ochoa notes, however, that in final position CV only occurs with long vowels or, if not long, then in atypical words, probably borrowed (Ochoa 1978:45):

ata: 'house'
k'ima: 'house'

bale:ya 'watermelon'
kine:ya '(Guinea) banana'

Huastec has neither vowel nor consonant clusters within syllables except for isolated instances, which consist of a semivowel followed by a glottal stop. Ochoa has identified five instance of CVCC in the Veracruz dialect (Ochoa 1978:46):

way? 'mazorca' *tay?* 'lime'
čiw? 'chayote' *ho:ltay?* 'ash'
lay? 'stinging nettle'

2.3 Stress

It is not thought that Proto-Mayan had tone (Kaufman 1986:17), although tonal features have developed in some Mayan languages. Chicomuceltec and Huastec have a stress system, which is not phonemic. In Huastec stress falls on the penultimate syllable when the last syllable is short. It falls on the last syllable if the penultimate syllable is short and the last is long, or if both are long. Chicomuceltec stress, which is marked in Termer's transcriptions, differs from that of Huastec in that it falls consistently on the last syllable. The table below demonstrates the differences in the stress system of the two languages:

Chc (T)	H (Vcz)	
<iník>	*ínik*	'person'
<pulík>	*pú:lek*	'big'
<chavál>	*čabá:l*	'ground'
<k'itá>	*k'i:tsá:*	'day'

2.4 Morphophonology

Like other Mayan languages, Huastec (and presumably Chicomuceltec) has rules, generally conditioned by the phonological environment, though sometimes by the morphological environment, which can produce alternations between phonemes, as well as the various allophones of a phoneme. Some are optional while others appear to be obligatory. They include such features as vowel deletion, glide-insertion, affricate shifts, vowel harmony and various phoneme co-occurrence constraints. Because some of these features may help to account for some of the

irregular sound-shifts from Proto-Mayan to Huastecan, a brief overview of the ones more pertinent to this study is provided below. Phonological and morphophonological rules are discussed in greater detail by Ochoa Peralta (1978), McQuown (1984) and Nieves and Leopoldo (1987).

2.4.1 Phoneme distribution and co-occurrence constraints

There are various phonemes in Chicomuceltec and Huastec that never appear to occur in particular phonological environments. In certain cases these constraints pertain only to one dialect or one language, in others they pertain to all varieties of Huastec as well as to Chicomuceltec. These phonemic co-occurrence restrictions and distribution patterns may provide the explanation for certain of the unexpected sound correspondences between Huastec dialects and Chicomuceltec (covered in the following chapter), and may also account for some of the Huastec and Chicomuceltec reflexes of certain Proto-Mayan sounds (covered in chapter four) that do not conform to the general sound-shift patterns.

2.4.1.1 Vowels

Words that begin with a vowel always bear a predictable phonetic glottal stop before the vowel in Huastec (and presumably also in Chicomuceltec), though some authors do not indicate the initial glottal sound because it does not represent contrast or distinctive opposition. With the exception of a small number of atypical words mentioned in 2.2, there are no final vowels in Huastec (or, presumably, in Chicomuceltec). The final vowel of the word always ends in a glottal stop or in a glottal fricative (*h*). Diphthongs in both languages are only formed with the semivocalic consonants *y* and *w,* which can be preceded by some of the vowels.

2.4.1.2 *w*

w never occurs word initially before rounded vowels in either Huastec, and does not appear to in Chicomuceltec, though this is not entirely clear from the orthography (cf. 3.1.2).

2.4.1.3 k^w and k'^w

Labiovelars are never found before rounded vowels or between V and C in Huastec or Chicomuceltec. Kaufman (1980) has shown that the labiovelars in Huastec (and presumably also in Chicomuceltec) appear to be the result of a particular development in the languages' phonological history: the absorption of *o* or *u* into *k* (or *k'*) after *w, y, h* or *ʔ*.

k(') o/u /__ w/y/h/ʔ V > k(')^w

There is evidence of this in certain forms preserved in Tapia Zenteno's (1772) word lists that still had these sounds represented in the written forms, e.g. <*cohuych*> ('fresh corn tamale', presumably *kowi:č*), in modern Huastec *k^{w}i:č*. In other cases he writes non-final *k^w* as <*qu*> and <*cu*> indicating that in the case of <*cohuych*> this process of deletion had not yet taken place. Kaufman (1980:106) notes further synchronic evidence for this deletion in the Potosí irregular possessed form of *pik'oʔ* which is *pi:k'^{w}al*, which presumably would have originally been *pi:k'oʔal*. There is also a regular possessed form: *pik'o:ʔil*. The fact that Huastec *k^w* and *k'^{w}* do not occur next to *o* or *u* is consistent with this process of deletion. The labiovelars in Chicomuceltec presumably had the same restrictions that apply to Huastec, though this cannot be confirmed given the lack of data.

Ochoa (1978:14) also notes for the Vcz dialect that *k'^{w}* is no longer a productive phoneme, and is now often found in free variation with *k^w* in young speakers.

2.4.1.4 Stops, affricates and fricatives in CVC morphemes

The main set of phoneme co-occurrence restrictions in Huastecan concerns combinations of plain and glottalised pairs of affricates and stops (not including nasals or bilabials), as well as *š* and Huastec *θ*, in the same morpheme (CVC). As will be illustrated below, certain combinations of the above consonants never appear to occur in Huastec (the data are too limited to determine whether this also holds for Chicomuceltec). *k'*, for example, never precedes *k* in the same morpheme (CVC), nor does *k* precede *k'* in both Veracruz and Potosí dialects of Huastec. In some instances

the co-occurrence constraints seem only to apply to one of the dialects. *t_č'* does not occur in any of my sources for the Veracruz dialect, for example, though there are cases of *t_ts'* (Vcz *č'* corresponds to Pot *ts'*) occurring in the Potosí dialect. The bulk of these discrepancies between the two dialects have to do with combinations involving *ts*(') or *č*(').

Phonetic constraints of a similar sort have been identified by Kaufman (1972) for Tzeltal and Tzotzil. He also noted that in Mamean *k* and *k'* became k^{y} and k'^{y} respectively when followed by *q* or *q'* in the same morpheme (Teco), or when followed by *q, q'*, or *x* in the same morpheme (Aguacatec, Southern Mam, Northern Mam). Aguatec and Northern Mam k^{y} and k'^{y} later became *č* and *č'* respectively (Kaufman 1969:159). Hopkins (1967:49-52) observed a series of constraints on the combinations of glottalised and plain affricates, stops and fricatives in the same morpheme in Chuj. Fox (1978) comparatively analysed the apparent dissimilation of velar stops and fricatives in various languages across the Mayan family in order to account for cognate sets in Mayan with unexpected reflexes.

My data for consonantal co-occurrence constraints in Huastecan were determined from lexical gaps in source dictionaries. In light of this, it is important to note that access to more detailed source dictionaries than are currently available may reveal examples of co-occurrences of consonants which at this stage appear to have a constraint operating on them. Some non-occurrences may also be due to the fact that certain phonemes (in particular Vcz *ts'* and Pot *č'* have a very limited rate of occurrence generally, and so their absence in certain phoneme combinations may be due simply to the fact that they are uncommon, rather than to a particular phonological constraint. Other phonological influences that have not been analysed in this paper may also have an effect on the absence or presence of certain consonant combinations (consonant clusters across morpheme boundaries, for example). At this stage therefore, the constraints that appear to operate on the co-occurrence of certain phonemes in Chicomuceltec and Huastec are not presented as evidence of definite phonological rules in the respective languages. Rather, the apparent absence of certain combinations of phonemes in the morpheme simply serves as an explanatory tool in later chapters to help to account for the occasional irregularities in the sound shifts that took place from Proto-Mayan to Proto-Huastecan, and from Proto-Huastecan to Huastec and Chicomuceltec.

The following tables illustrate the constraints that appear to operate on certain combinations of certain phonemes occurring in the same morpheme in Huastec. Chicomuceltec has not been included, as the data for the language are so limited that the absence of various consonant combinations is not particularly significant. Appendix IV provides a full chart of examples of vocabulary in which permitted consonant combinations do occur, in both dialects of Huastec and in Chicomuceltec. For the morpheme form C_1VC_2 the vertical axis for each table indicates the first consonant in the morpheme, the horizontal axis indicates the second consonant in the morpheme. Crosses indicate non-occurring forms.

Veracruz

	t	t'	ts	ts'	č	č'	θ	š	k	k'
t		X	X	X		X				
t'			X	X	X					
ts	X	X				X		X		
ts'	X	X			X	X	X	X	X	X
č		X	X	X		X	X			
č'	X	X	X	X			X			
θ				X	X	X		X		
š		X					X			
k										X
k'								X	X	

Potosí

	t	t'	č	č'	ts	ts'	θ	š	k	k'
t		X	X	X						
t'					X	X				
č	X	X			X	X				
č'	X	X		X	X	X	X	X	X	
ts	X	X	X	X		X	X	X		
ts'	X			X			X			
θ				X	X	X		X		
š				X			X			
k			X							X
k'									X	

Figure 4. Phoneme co-occurrence constraints in CVC morphemes

On the basis of the data above, the following observations can be made (*G* = glottalised consonant, *NG* = non-glottalised consonant. Identical subscript numbers refer to identical consonants):

a) All $G_1\_G_1$ occur, except for Pot *č'*_*č'*,

In the example below the Pot form is *š_č,* corresponding to Vcz *ts'_ts'*, in order to avoid the combination *č'_č'* (refer to appendix IV for full charts of the vocabulary in which these phoneme combinations occur):

Vcz: *ts'uts'ik* 'to mend, stop-up, cover, refill'
Pot: *šučk'iyal* 'covers it'

b) All NG_1_NG_1 occur

c) All G_1_NG_1 occur except for *k'_k* (in both Vcz and Pot).

Fox (1978:84) has noted that there appears to be a restriction on glottalised velar stops that preceded plain velar stops in all Mayan languages. In Huastec the plain velar stop never precedes the glottalised stop either (cf. d.).

d) No NG_1_G_1 occur except for Vcz *ts_ts'* and Pot *č_č'* (in correspondence with each other)

e) No combination of *ts_č* (both glottalised and plain) occurs in either Vcz or Pot except for Vcz *ts_č* and Pot *ts'_č.*

In the example below *č_č* in Pot corresponds to Vcz *ts_č* to avoid the occurrence of *č_ts:*

Vcz: *tsi:č* 'to come'
Pot *či:č* 'to come'

It is obviously the Potosí dialect which is experiencing the constraint in this case, given that *ts_ts* (which would be the Vcz correspondence if Pot had the regular form) occurs in Vcz.

In the example below *ts'_ts* in Vcz corresponds to Pot *ts'_č* avoid the occurrence of *č'_č*

Pot: *ts'u:č* 'quarter'

Vcz: *ts'u:ts* 'quarter'

Here it is the Vcz dialect that appears to be experiencing the constraint, as *č'_č* (the expected Pot correspondence if the Vcz dialect did have the standard form) occurs in Pot.

f) No combination of Vcz *t_ts* (glottalised or plain) and correspondingly Pot *t_č* (glottalised and plain) occurs except for Pot *t'_č'* and *t'_č*.

In the examples below Pot *t'_č* corresponds to *t'_š* or *ts'_ts* in Vcz, presumably because Vcz avoids the expected co-occurrence of *t'_ts*:

Pot: *t'učwi:la:b* 'spike or ear of grain, peg, pin'
Vcz: *t'ušul* 'crested, pointed, like part of a snow cone above the rim of the glass it's in'

Pot: *t'učat* 'full'
Vcz: *ts'utsat* 'full'

g) In Vcz no combination of *t_č* occurs where one consonant in the combination is glottalised and the other plain. *č'_t'* also does not occur. All other combinations of *t_č* occur where either both consonants are glottalised, or are plain. In Pot the pattern in the corresponding phonemes is different. *ts* does not occur with either glottalised or plain *t*, and *t'* does not occur with glottalised or plain *ts*. *t* can occur with both glottalised and plain *ts,* and *ts'* only with *t'*.

In the example below, Vcz *t'_č'* corresponds to *k'_ts'* in Pot, presumably because Potosí avoids the combination of *t'_ts' (Vcz k'_č'* occurs elsewhere, so it is not the Potosí dialect which has the standard form here, with Vcz experiencing a constraint):

Vcz: *t'eč'k'iy* 'drop one thing onto another, *t'uč'ik'* 'to press, tread',
Pot: *k'ets'a:l* 'to press, tread'.

Because *Vcz t'_ts'* does not occur either (cf. f), this means that in both dialects there is a restriction on *t'_ts',* despite the fact that these phonemes do not usually correspond to each other (note that there are occurrences of Pot *t'_č'* but these are not cognate with Vcz *t'_č'*).

Below, Pot *t_ts'* corresponds to Vcz *t_š*; the Veracruz dialect does not appear to allow *t_č'*, though in this instance the change to *š* in Vcz may be the result of affricate simplification in following a consonant.

Pot: *tots'k'ilab* 'bar'
Vcz: *tošk'iy* 'to bar'

h) All combinations of *t_k* occur (plain and glottalised).

i) All combinations of Vcz *ts_k* and Pot *č_k* (plain and glottalised) occur except possibly Vcz *ts'_k'* and *ts'_k*; Pot *č'_k* and *k_č*, though this could be due simply to the fact that Vcz *ts'* and Pot *č'* are uncommon phonemes.

j) All combinations of Vcz *č_k*, Pot *ts_k* occur

k) *š* occurs in every combination except Vcz *ts'_š* and correspondingly Pot *č'_š*, as well as *θ_š* (as either the first or second consonant in the morpheme) in both Vcz and Pot (and possibly Vcz *k'_š* but this may be due to lack of data).

l) *θ* does not occur with *ts' č, č'* or *š* in Vcz (either as the first or second consonant in the morpheme), or, correspondingly, with *č', ts, ts'* or *š* in Pot.

m) The following constraints involving certain vowels also appear to occur: in Pot there are no instances of any of: *č'e, č'o, če, ts'e, tsu* preceding any of the plain/glottalised stops and affricates or *š*. Correspondingly, neither are there any instances in Vcz of *ts'e, ts'o, tse, č'e, ču* in those environments. Additionally, there are no instances of Vcz *ts'a, tsa* and *tso* preceding the plain/glottalised consonants and *š*. These discrepancies may be the result of lack of data in the Vcz sources.

The numerous constraints that appear to occur with Vcz *ts'* and Pot *č'* may have more to do with the fact that these phonemes are generally highly unproductive in the respective dialects. Ochoa observes that in the Veracruz dialect the glottalisation of *ts'* is disappearing, and can now often be found in free variation with *ts* (Ochoa 1978). Larsen and Pike have also noted that Pot *č'*(which corresponds to Vcz ts') does not occur in final position. They have also concluded that it does not precede *e* at all and does not follow *a* or *o* (Larsen and Pike 1949 276). I have, however, found instances of Pot *č'* occurring after *o* and Vcz *ts'* occurring after *a* and *o,* though it is nevertheless clear that they have a very limited occurrence in the two dialects, and in many cases are sound symbolic.

Pot: *k'oč'h'ol* 'clucking'	Vcz: *k'ots'k'om* 'clucking'
koč'ocik 'hooked, curved'	*kats'uw* 'break (something delicate)'
t'oč'ti:l 'walk with the head moving backwards and forwards'	*k'ats'pa?* 'break, crush'

The paucity of the Chicomuceltec data means that firm conclusions cannot be reached regarding the distribution of phonemes in this language, and any restrictions that might have occurred.

2.4.2 Phonemic substitution and symbolism

McQuown (1984:89) has identified various cases in Huastec of apparent substitution of *č* for *ts* or *č'* for *ts',* which may be examples of an earlier process of semantic derivation based on phonemic alternation:

tsil 'bald, hairless' *čil* 'bare, branchless'

In some such cases the change is not only in palatalisation, but also glottalisation:

ts'a?(ublek) 'cheek' *ča?(u:l)* 'cheeky'
ats' 'get wet' *ač* 'bathe'

There are also instances of this occurring through vowel shifts:

at'aš 'bad'	*it'(iš)* 'annoyance'
o:m 'sows corn'	*e:m* 'corn plant'
ma:m 'grandfather'	*mo:mob* 'grandson'
šo:ts'(anal) 'wrinkles up'	*šuts'(el)* 'wrinkles'

Interestingly there is similar evidence in Totonaca of semantically related pairs of words differing in only one phoneme, suggesting the possibility that the trait may be diffused. McQuown (1990:66) has noted that in certain pairs of words *s* and *ts* on the one hand seem to be associated with the idea of smallness or diminution, while š or č, in contrast, are associated with the idea of largeness or augmentation:

talaktsaluh 'to break into fragments'	*talakčaluh* 'to break into lumps'
smulut 'small arc'	*šmulut* 'big arc'

2.4.3 Vowel Harmony

In some cases where the Huastec form has a suffix, a process of vowel assimilation may have had an affect on the vowel of the root and suffix. Ochoa has noted that there is a tendency in Huastec for vowel harmony between the vowel of the suffix and that of the root in verbs, nouns and adjectives (Ochoa 1978:66)

She gives the following examples from the Veracruz dialect:

Verbs: (verb roots are always CVC)

way-al	'to sleep'
čem-el	'to die'
kon-oy	'to ask'
t'oh-on	'to work'
ʔin č'aʔ-ay	'he bought'
t'uk-un	'it dripped'

Nouns:

iθim	'beard'
unup	'ceiba'
pebe:b	'wing'
hoto:č	'armpit'
θiniy	'scorpion'
k'amal	'fire, spark'

Adjectives:

č'amay	'cold'

t'un-uy	'black'
čip-i:l	'little'

Chapter Three

Chicomuceltec and Huastec sound correspondences

As was illustrated in the previous chapter, the phonemic inventories of Chicomuceltec and Huastec are very similar, and in many cases identical phonemes in the respective languages correspond exactly to each other. There are however certain differences in the phonemic systems of the two languages, and these are discussed in this chapter through the comparison of cognate sets. The sound correspondences that are identified will then serve as the basis for reconstructing the Proto-Huastecan phonemic inventory and establishing the sound changes from Proto Mayan in chapter four.

As will be shown, the main point of divergence in the correspondences between Huastec and Chicomuceltec occurs in the voiceless dental stops, and dental and palato-alveolar affricates, where the two main dialects of Huastec themselves diverge, producing six separate correspondences sets (including the glottalised forms). Chicomuceltec has also merged *b* and *w* to *w* where Huastec maintains the contrast, though Chicomuceltec retains *s* where Huastec has the innovated *θ* (unknown elsewhere in the Mayan family). The two nasals, *l*, *y*, *p*, *k*, *š* and *h* are all identical in the two languages. As a rule, the vowels of Huastec and Chicomuceltec also correspond to each other, with several exceptions. Long and short vowels are phonemically distinct in Huastec, and possibly Chicomuceltec though due to the inconsistent orthography of the records for Chicomuceltec this is not clear from the written forms.

The lack of reliable phonetic transcription in Sapper and Termer's recordings produces various difficulties in establishing certain sound correspondences. We have already seen that glottalised consonants are seldom indicated in their word-lists. Apparent mishearings involving various other phonemes in Chicomuceltec (such as cases of voiced instead of voiceless bilabial stops, or voiceless dental affricates instead of stops) may account for many of the exceptions to the general correspondence rules. Often there will be multiple variations in the way a single phoneme is

transcribed; this is particularly so in the case of Chicomuceltec *w*. Other exceptions to general sound correspondences appear to be due to certain phoneme co-occurrence restrictions. Still other exceptions to the correspondences are more difficult to account for, and may be due to sound change laws which cannot be ascertained from the limited Chicomuceltec data available.

Below the Huastec-Chicomuceltec sound correspondences are presented. Difficulties arising from orthographic inconsistencies in the Chicomuceltec sources are addressed as they arise.

3.1 Consonants

3.1.1 Chc *p* : Hua *p*

Huastec *p* corresponds to Chicomuceltec *p*, as can be observed from the cognate sets below:

Chc	Vcz	Pot	
<*pes*>	*peθoy*	*peθob*	'broom'
<*sapup*>	*θapup*	*θapup*	'cord, string'
<*pohos*>	*pohoθ*	*pohoθ*	'dust'
<*pichich*>	*pič'ič*	*pits'its*	'grasshopper'
<*pat* >	*pats*	*pač*	'pot'

The only exceptions to this correspondence involve certain cases where the Huastec *p* corresponds in Sapper's Chicomuceltec lists to a *b:*

Chc	Vcz	Pot	
<*bulic*> [S]	*pu:lek* 'big'	*pu:lik* 'big'	'beautiful'
<*ṡucu batos*> [S]	*paits, pa* 'to descend'		'low'
<*ba*> [S]	*paw*	*paw*	'smoke'
<*balbut*> [S]	*palu*	*palu*	'soft, fragile'
<*boc*> [S]	*pokθot* (grass)		'thread'

These cases can be accounted for in terms of mishearing on the part of Sapper. He transcribes <*bulic*> 'beautiful', corresponding to Huastec *pu:lek* 'big', but *p* is obviously being mistaken for its voiced counterpart here, given that elsewhere in his lists he records the word <*sucu pulic*>

'big'. Termer too has <*tapulik*> 'fat'. This is similarly so with Sapper's <*ba*> 'smoke', where Termer has <*pa*>, and Sapper's <*boc*> 'thread', where Termer has <*poc*>. In these instances of the voiced stop in Chicomuceltec there also exist alternative forms with the voiceless stop, indicating that the former is simply a mishearing. We may therefore also assume that in the two cases where there are no alternative forms present, that these similarly are merely mishearings. This type of mishearing is not an unusual phenomenon: German speakers, used to hearing an initial *p* as aspirated *[p^h]* often mishear the voiceless, unaspirated *p* of other languages as *[b]*.

In the limited examples of Chicomuceltec sentences recorded by Sapper there are also three cases of *b:*

<*bal chac vué la si*>	'the fire is burning'
<*bu aua u alé*>	'I see the corn field'
<*bachua si*>	'I make fire'

These are difficult to account for, especially given that they do not have Huastec correspondences to provide clues as to whether these are also mishearings of *p*. On the basis of the other cases of <*b*> in Sapper's wordlists, however, we can probably assume that these too are mishearings of some kind.

3.1.2 Chc *w* : Hua *b*
Chc *w* : Hua *w*

It is with the Chicomuceltec correspondences to Huastec *b* that the greatest inconsistencies in Sapper's and Termer's orthographies are seen. Sapper uses all of <*v*, *vu*, *ju*, *ua*, *ue*, *uo* and *hu*> in Chicomuceltec words where cognate words in Huastec have word-initial (and sometimes medial) *b* and *w* (the two phonemes merge in Chicomuceltec). He bases his orthography on that of Stoll (though he is much more inconsistent than Stoll). With regard to the pronunciation of these sounds, Stoll states (1884/1954:53)[5]:

[5] Taken from the Spanish translation (Antonio Goubaud Carrera 1958) of the 1884 German original.

> "la *u* se pronuncia como en la palabra *puro*. La *v* como en la palabra *vaso*. Con frequencia se distingue el sonido de *u* despues de la *v*, en cuyo caso se pronuncia como la *w* inglesa en la palabra *well*."
>
> (the *u* is pronounced as in the word 'puro'. The *v* as in the word *vaso*. Frequently the sound of *u* is distinguished after that of *v*, in which case it is pronounced as in English *w* in the word *well*)

There are enough instances of *vu* in Sapper's transcriptions to indicate that the phoneme in question is a *w*. Sapper also uses <*ua/uo/ue*> in ways that suggest a *w*. Termer uses <*v*> fairly consistently in correspondence with Huastec *b* and *w*, and occasionally he uses <*u*> before *a/o/e/i*. The Confesionario also has *v*: <*avatiu*> 'your dream', <*vanchenlau*> (cf. Termer <*xemblau*> 'sickness'). We can assume, on the basis of Sapper's orthography, that Termer is using <*v*> word-initially (and medially, at the beginning of root boundaries in compounds) to represent *w*. This is further underscored by Campbell's (1988) list taken from field work in the 1970s where two informants familiar with some Chicomuceltec words gave *wit^{y}im* for 'deer', corresponding to Sapper *vitím*, Termer *vitím*, Huastec *bičim*.

3.1.2.1 lists cognate sets where Chicomuceltec non-final *w* corresponds to Huastec non-final *w*. 3.1.2.2 lists cognate sets where Chicomuceltec non-final *w* corresponds to non-final Huastec *b*.

3.1.2.1 Non-final Chc *w* : Hua *w*

Chc (Termer)	Chc (Sapper)	Hua (Vcz)	
<*ivalíl*>	<*uyu valil*>	*wali:l*	'fruit'
<*vainék*>	<*vainekil*>	*waynek*	'dry'
	<*vuelchit*>	*we?e:l*	'yesterday'
<*vitím*>	<*vitím*>	*witsim*	'deer'
<*vai*>	<*vuai*>	*way?*	'corn ear'
<*val*>	<*jual*>	*wal*	'eye'
<*val*>	<*ual*>	*wal*	'forehead'
<*juluval*>	<*hul a-hual*>	*in huhul in wal* (L)	'eyebrows, eyelashes'
<*véu*>	<*uéu*>	*wew*	'tail'

3.1.2.2 Non-final Chc *w* : Hua *b*

Chc (Termer)	Chc (Sapper)	Hua (Vcz)	
<*kovák*>	<*covak*>	*k'ubak*	'hand'
	<*vuacan*>	*bakan*	'tortilla'
	<*vuec*>	*bek*	'guava'
	<*avel*>	*alebe:l*	'new/beautiful'
<*uató*>	<*uotó*>	*bat'aw*	'armadillo'
<*veklék*>	<*ulcer/vueclec*>	*beklek*	'bone'
<*vel*>	<*uel*>	*bel*	'road'
	<*uai*>	*ba:y*	'brother-in-law'

There are a small number of cognate sets where Hua *b* is represented by <b> in Termer's transcriptions:

Chc (Termer)	Chc (Sapper)	Hua (Vcz)	
<*tonacabij*>		*bih*	'name'
<*beleteu*>		*lahu bele:hu*	'19'
(but <*vueleteeu*>	<*vuele te eu*>	*bele:hu*	'9')
<*boteu*>		*la:hu-bo:?*	'15'

In light of the above examples, it is possible that *w* in Chicomuceltec was not a clear *w*, but may have had a fricative quality *[ß]*, somewhere between an approximant and a bilabial plosive, which was mistaken at times for a *b* by Termer. This seems particularly likely given the cases of '19', which is transcribed by Termer with a word-initial <*b*>, yet in the case of '9', which shares the same root, <*vu*> (presumably *w*) is given by both Termer and Sapper, suggesting that the former was a mishearing.

Significantly, Nieves and Leopoldo (1987:1027) have observed that in the La Pimienta community of Potosí Huastec, *w* is realised as *[b^w]*. Huastec allophonics of *b* show a similar fricative quality. Kaufman (1985:475) has noted four basic patterns of Huastec *b* allophonics: The Veracruz, Potosí and Otontepec dialects all have *[ß]* between vowels or between a consonant and a vowel, and Veracruz also has *[ß]* word finally after vowels (cf. 2.3.2).

Another explanation for some of the instances of <*b*> in Chicomuceltec may be that they result from borrowing. The Spanish borrowings containing *b* seem to have retained the *b* intact (although of course it is possible that this too was borrowed into Chicomuceltec with a *w*, but misheard by the transcribers):

<*tuhil ixlabon*> 'flint' < Spanish *eslabon* 'a chain link used to strike sparks for making fire'

The only other exceptions to Huastec *b* corresponding to Chicomuceltec *w* word-initially concern several cases before rounded vowels, where Chicomuceltec has *h:*

Chc	Vcz	Pot	
<*hohol*> *[S]*	*bohol*	*bohol*	'corn cob'
<*hoo inik*> *[S]*	*bo? inik*	*bo? inik*	'100'
<*hukte eu*> [T]	*bu:k*	*bu:k*	'7'

In the above examples the expected initial consonant in the Chicomuceltec forms would be *w*, in correspondence to Huastec *b*. In these cases Huastec *b* precedes *o*, or *u* indicating that there is possibly a phonological rule in Chicomuceltec where *w* > *h* /#__*o,u* It is not unexpected that Chicomuceltec has a constraint against *w* preceding rounded vowels: Huastec does not allow *w* /#__*o,u* either. Complicating this possibility however, is the fact that both Sapper and Termer have <vo te eu> for 'five', corresponding to Huastec *bo:?*. It may be that the cases of Chicomuceltec <*h*> above are borrowings from a neighbouring Mayan language. This is definitely a possibility in the case of the number words: Tzeltal and Tojobal have initial *h* for '7' and '15'. The Huastecan cognate set for 'corn cob' is more difficult to account for, however, as no forms cognate with this set occur in the rest of the Mayan languages (cf. 4.1.26 for a detailed discussion of these and other similar Chicomuceltec forms in connection with the Proto-Mayan etyma).

The only other example where *w* does appear to precede a rounded vowel in the Chicomuceltec sources is in both Sapper and Termer's transcription of 'armadillo', which is <*uoto*>. The Huastec form is *bat'aw*.

3.1.2.3 Word-final *w* in Chicomuceltec

Word-finally both Sapper and Termer generally use <*au*> (sometimes <*eu*>) quite consistently in correspondence with word-final Huastec *b* (and presumably *w*, though there are fewer examples of this in Huastec with Chicomuceltec correspondences). This possibly suggests that a distinction was noticed by both Termer and Sapper in the articulation of word-initial *w* on the one hand, and word-final *w* on the other in Chicomuceltec. It is possible that Termer and Sapper, as speakers of German (and presumably Spanish), were more familiar with the *w* falling at the end of morpheme boundaries, (e.g. German *kauen* 'to chew', *kaugummi* 'chewing gum') and so were simply able to transcribe the phoneme in this position more accurately, while the word-initial phoneme would have been less familiar to them, as it does not exist in German. It is in any case obvious that the word-final *w* is transcribed in Chicomuceltec with a lot more consistency than its word-initial counterpart:

Chc (Termer)	Chc (Sapper)	Hua (Vcz)	
	<*au*>	*ab*	'rain'
	<*chauic*>	*tsab k'i'*	'day-after-tomorrow'
<pavaú>		*pabab*	'fin'
<*pajaú*>	<*a-pahau*>	*pa'hab*	'sandals'
	<*lacau*>	*lakab*	'skirt'
<*lekaú*>	<*lecau*>	*lek'ab*	'tongue'
<*kamau*>	<*camau*>	*kamab*	'tooth'
<*pavaú*>	<*pauau*>	*pabab*	'wings'
<*a chikéu*>	<*chic eu*>	*tsák'ib*	'sweat'
	<*c'asau*>	*k'aθau*	'turkey'

There are several cases where *w* is not transcribed in the Chicomuceltec forms:

Chc (Termer)	Chc (Sapper)	Hua (Vcz)	
<*tuhu*>		*tuhub*	'stone'
<*coyo*>		*k'oyob* (wooden stairs)	'stick'

In these cases the Huastec *b* is following a rounded vowel. In Chicomuceltec the corresponding approximant is less audible after a rounded vowel (especially after *u*) and was probably often

subject to elision, or to mishearing: *uw* and *u* are very difficult to distinguish if one is unfamiliar with the distinction. In many languages of the area final sonorants are voiceless (Campbell, personal communication). If final *w* was voiceless in Chicomuceltec, then this would have been particularly difficult for transcribers to distinguish after rounded vowels.

In one case following a rounded vowel the Chicomuceltec sound corresponding to Hua *b* is transcribed as <*j*>:

Chc (Termer)	Chc (Sapper)	Hua (Vcz)	
<*tuj*> [T] 'saliva'		*tubay*	'spit on'

This may be a divergent transcription of a word-final labiovelar approximant, or it may represent *h*. If final *w* was voiceless in Chicomuceltec, then voiceless *w* after *u* would be difficult to distinguish from *h* after *u).*

The one exception to the Chicomuceltec word-final <*u*> corresponding to Huastec word-final *b* is in the case of the Huastec *t'uhab ab* (hail, lit: 'stone rain'), which has the Chicomuceltec cognate <*tu ab*> [Sapper]. This is probably another mishearing, given that 'rain' is transcribed by Sapper as <*au*>. Sapper's <*b*> does lend further support the suggestion above that *w* in Chicomuceltec was not a clear *w*, but may have had a fricative quality *[ß]* that could be mistaken for a *v* or a *b* by the German transcribers. This is also possible if final *w* were devoiced by the rule of final sonorant devoicing, though the evidence for this is speculative.

3.1.3 Chc *t* : Hua *t*

This is a consistent correspondence set:

Chc	Vcz	Pot	
<*tihík*>		*tiyik*	'arm'
<*te*>	*te?*	*te?*	'tree'
<*tusai*>	*tuθey*	*tuθey*	'tomato'
<*tom*>	*to:m*	*tom*	'country, grass'

<*tai* >	*tay?*	*tay?*	'lime'
<*atic*>		*atik*	'daughter'
<*petpet* >	*pet*	*pet*	'tortoise'
<*nacat* >	*nakat*	*nakat*	'long'

3.1.4 Chc *t'* : Hua *t'*

I assume that the glottalised *t'* in Huastec corresponds to a glottalised *t'* in Chicomuceltec, although because glottalised consonants are rarely marked in the Chicomuceltec sources this cannot be affirmed with certainty.

Chc	Vcz	Pot	
<*uotó*>	*bat'aw*	*bat'aw*	'armadillo'
<*sot*>	*θut'*	*θut'*	'bat'
<*tu ab*>		*t'uhab*	'hail'
<*tuhu*>	*t'uhub*	*t'uhub*	'stone'
<*tiyax*>	*t'ihaš*	*t'ihaš*	'thin'

There is one exception to this correspondence set:

Chc	Vcz	Pot	
<*tzinté*>	*t'intse?*	*t'inče*	'sweet manioc'

It is presumably Chicomuceltec that has the expected form here, at least in the second syllable, as the compound contains the word for tree: *te?* (glottal stops are not marked in the Chicomuceltec sources). The Veracruz and Potosí forms have most likely undergone metathesis to avoid the combination of *ts'_t* (in Vcz) and *č'_t* (in Pot), which, given their absence in the data at my disposal, appear to have an occurrence constraint operating on them in the respective Huastec dialects (cf. 2.4.2.3). The initial <*tz*> of Chicomuceltec is problematic however. Usually cases where <*tz*> is transcribed in the Chicomuceltec sources can be shown to be the result of a mishearing of *č* (and occasionally *s*). If *č* is meant here, then it does not correspond to either the expected Veracruz form with initial *ts'* or the actual Veracruz form with *t'* (Chc *t* corresponds to

Vcz *ts* and Pot *č*, cf. 3.5). It is possible that the initial <*tz*> was actually *t* misheard, which would correspond to the Veracruz and Potosí forms.

3.1.5 Chc *t* : Vcz *ts* : Pot *č*

In this series, Chc *t* corresponds Vcz *ts* and to Potosí *č*:

Chc	Vcz	Pot	
<*panatiká*>	*tsik'*	*čik'*	'urine'
<*tucúl* >	*tsukul*	*čukul*	'stomach'
<*vitím*>	*bitsim*	*wičim*	'deer'
<*k'ita* >	*k'i:tsa*	*k'ača*	'day'
<*tutenec*>		*t'učenek*	'full'
<*vatiu* >	*watsib*	*wačib*	'dream'
<*pat*>	*pats*	*pač*	'pot'

There are several exceptions to this correspondence set:

Chc	Vcz	Pot	
<*antuch* >		*čuč*	'coyote'
<*ichit*>	*itsič*	*ičič*	'heart'
<*val vichit*>		<*zam u ychich*> [TZ]	'chest'

In the case of 'coyote' the Chicomuceltec form should be *tut* or the Pot form should be *čuts* (there is no Vcz form in the sources I have at my disposal). As was illustrated in the previous chapter however, there are no instances in the data at all of Pot *č* before *ts,* suggesting that there may be a constraint on the co-occurrence of these phonemes, which would account for the discrepant sound correspondence here.

Interestingly, in the case of 'heart' (and 'chest', which contains the same root), none of Chicomuceltec, Veracruz and Potosí correspond to each other. It is unlikely that Potosí has the regular reflex, because the corresponding Veracruz form would be *itsits*, and yet the co-occurrence

of these consonants does not appear to have a constraint on it in Vcz, so there is no reason why it would not occur. Veracruz *itsič* could be the regular form, because the expected Potosí correspondence to this is *ičits*, and *č_ts* does not occuř in Potosí in the data at my disposal. But if it the Veracruz form were regular, then we would expect the Chicomuceltec form to be *ităč*. *t_č* does not appear to be avoided in Chicomuceltec however, (e.g. <*tuch*>), so this is less likely. It is more plausible that Chicomuceltec has the regular form: the expected Veracruz form in this case would be *ičits*, Potosí would be *itsič*, but both these combinations have a constraint operating against them in the respective Huastec dialects.

3.1.6 Chc *t'* : Vcz *ts'* : Pot *č'*

There are no examples of this correspondence in the data. Both Ochoa (1978:27) and Larsen and Pike (1949:276) have noted that the occurrence of Pot *č'* and of Vcz *ts'* is very restricted. As mentioned in the previous chapter, Ochoa has observed that in the Veracruz dialect the glottalisation of *ts'* is disappearing, and can now often be found in free variation with *ts*. The fact that it is an uncommon phoneme would explain the lack of any correspondence with a Chicomuceltec form, given the paucity of Chicomuceltec data. It can only be assumed that the Chicomuceltec correspondence would be *t'*, on the basis of the non-glottalised correspondence set.

3.1.7 Chc *č* : Vcz *č* : Pot *ts*

Hua Vcz *č* and Hua Pot *ts* correspond to Chc *č*:

Chc	Vcz	Pot	
<*chei*>	*če:y*	*tse:y*	'bed'
<*cham*>	*ča:m*	*tsam*	'snow, ice'
<*chul*>	*ču:l*	*tsu:l*	'flute'
<*chaválchauan*>	*čaba:l*	*tsaba:l*	'ground'
<*sanich*>	*θanič*	*θanits*	'ant'
<*ichán*>	*ič̣a:n*	*itsa:n*	'relative'
<*xemenejich*>		*tsemenekits*	'death'

There is a set of exceptions to this correspondence set, in which the Chicomuceltec correspondence is *ts* (transcribed by Sapper and Termer as <*tz*>):

Chc	Vcz	Pot	
<*chemenekitz*> [T]		*tsemenekits*	'corpse'
<*vanajitz*> [T]	*wana:č* 'lets go!'		'forwards'
<*tajaxitz*> [T]		*takašits* 'it's already clear'	'light (adj)'
<*avechitz*> [T]	*we?e:l*	*we?e:l*	'yesterday'
[S: <*vuelchit*>]			
<*alam jototz*> [T]	*hotoč*	*hotots*	'armpit'
<*tzutuchó*> [S]		*tso*	'jaguar'

What is significant in all of these cases is that in no instance do both Sapper and Termer use <*tz*> for the same sound in the same word. This is a strong indication that the Chicomuceltec <*tz*> is probably a mishearing.

Four of the cases of Chicomuceltec *ts* occur in a suffix denoting completed acts, all transcribed by Termer. The corresponding suffix in Huastec is [*-its*] in the Potosí dialect and [*-ič*] in the Veracruz dialect. Given that this suffix also occurs several times with the expected phoneme for this correspondence set, [*ič*], in both Termer's and Sapper's transcriptions, we can assume that these instances with <*tz*> in Chicomuceltec can be put down to mishearing of *č:*

<*yejelich* >*[T]*	'big' *(yejel* 'grow tall', *its* = completed act (Pot)
<*xemenejich* >*[T]*	'death' *(tsemenekits* 'it's already dead'(Pot)
<*navajich*> *[T]*	'dream, to sleep'
<*sucu uich*>*[S]*	'far'
<*chauichich*>*[S]*	'day before yesterday'

It may be that the Chicomuceltec *č* actually had a somewhat fronted articulation, rendering it closer phonetically to *ts,* and causing the possibility of mishearing by the German transcribers. Cases of <tz> may therefore be an inaccurate attempt to record something like a fronted *č.*

Sapper uses <*tz*> in <*tzutuchó*> 'jaguar'. It is less certain what this corresponds to in Huastec. It is the final part of the word (probably a separate word) *cho* that corresponds directly with Pot *tso.*

There are no instances of Chicomuceltec *tz/ts* in the Confesionario.

3.1.8 Chc *č'* : Vcz *č'* : Pot *ts'*

As with other glottalised consonants I assume that Chicomuceltec *č* was glottalised in cognates which have a glottalised *č'* in Vcz (Pot *ts'*), though because glottalised consonants are seldom marked in the Chicomuceltec sources this cannot be established with certainty.

Chc	Vcz	Pot	
<*chac* >	*č'ak*	*ts'ak*	'flea'
<*chichin* >	*č'ičin*	*ts'itsin*	'hen, bird'
<*chen* >	*č'e:n*	*ts'en*	'hill'
<*kuchejét*>	*č'ehet*	*ts'ehet*	'thigh'
<*chochun*>	*č'oč'on*	*ts'ots'on*	'dew'

There are several exceptions to this correspondence set:

Chc	Vcz	Pot	
<*cheec*>	*ts'a?ik*	*ts'a?ik*	'bitter'
<*itz* >(S: <*ich*>)	*i:č'*	*i:ts'*	'moon'

It is uncertain as to why both dialects of Huastec have *ts* for 'bitter'. If Sapper's *cheec* is correctly transcribed, one would expect the Veracruz dialect of Huastec to have *č* here. It is possible that sound symbolism is influencing the forms.

Termer's <*its*> 'moon' appears in Sapper's word list as <*ich*>, suggesting that this too was probably articulated as *[č]*.

3.1.9 Chc *k* : Hua *k*

This is a consistent correspondence set:

Chc	Vcz	Pot	
<*tihik*>	*tiyik* 'elbow'	*tiyik* 'elbow'	'arm'
<*ueclec*>	*beklek*	*beklek*	'bone'
<*tacao* >	*takab*	*takab*	'griddle'
<*kisiu*>	*kiθib*	*kiθib*	'sand'

3.1.10 Chc *k'* : Hua *k'*

The correspondence set containing the glottalised form of the velar stop is also consistent:

Chc	Vcz	Pot	
<*k'a'k* >	*k'a.k'*	*k'a.k'*	'hot'
<*kima*>	*k'ima:ʔ*	*k'ima:ʔ*	'house'
<*c'oon*>	*k'oʔon*	*k'oʔon*	'naval'
<*k'ij*>	*k'ih*	*k'ih*	'day, feast day'
<*nuc*>	*nuk'*	*nuk'*	'neck'
<*tak'in*>	*tak'in*		'silver'

Note that glottalised stops are marked in some cases for Chicomuceltec.

3.1.11 Chc *k(')*^{w} : Hua *k(')*^{w}

Kaufman (1980) has shown that the labiovelars in Huastec are the result of the absorption of *o* or *u* into *k* (or *k')* after *w, y, h* or *ʔ* (cf. 2.4.1.3).

k(') o/u /__ w/y/h/ʔ V > *k(')*^{w}

The Huastec labiovelars are problematic in terms of their Chicomuceltec correspondences given the fact that the transcription system used by Sapper and Termer was not detailed enough to transcribe a labiovelar accurately, if one did in fact exist at all in Chicomuceltec.

3.1.11.1 k^w

There are one or two examples where it appears as though an attempt may have been made to transcribe k^w:

Chc	Vcz	Pot	
<*cuxix* >[S]	*k^wisis*	*k^wisis*	'charcoal'
<*kunim*> [T and S]	*k^winim*	*k^winim*	'cotton'
<*k'et* >[T]	*k^wet'em*		'man'
<*kvatita*> [T]	*č'ehel k'itsa*	*kubat a k'ič̌a* [L]	'midday'
<*cvuat quita* >[S]			

The Chicomuceltec forms for 'midday' *kvatita* [T], *cvuat quita* [S] are particularly revealing. Here a <*v*> has been placed immediately next to a *k* in Termer's transcription, and next to a *c* in Sapper's, suggesting a [k^w] sound. If Chicomuceltec did not have labiovelars the expected transcription would be something similar to *kuvat*, with Chc *w* corresponding to the medial *b* in Huastec. It appears however, that the same process of deletion of *u* preceding a semivowel apparent in Huastec also occurred in Chicomuceltec. Given the fact that in this instance the Chicomuceltec labiovelar is corresponding to a Huastec *b* preceded by a rounded vowel, it seems that the process of labialisation of velars began before the Huastecan split, but continued after the languages separated and when Chicomuceltec merged *b* with *w*.

The two forms for 'charcoal' and 'cotton' simply have a *u*, which, as we have seen, was used by Sapper and Termer at times for *w* (cf. 3.1.2), but also generally for the vowel, so it is impossible to tell here whether a labiovelar was meant here or not. It may be that in Chicomuceltec $k^wi > ku$.

The Chicomuceltec transcription of *k'et* 'man' may possibly suggest a labialised *k* through the use of the apostrophe, though this is speculative.

3.1.11.2 k'^{w}

The glottalised form of the Huastec labialised velar stop is similarly problematic with regard to its Chicomuceltec correspondence. In one case, the Chicomuceltec transcription *queelte* 'branch' could be read as having an initial *k'^{w}*, especially given that Sapper generally uses <*k*> or <*c*> for a plain voiceless velar stop, so were there no labialised *k'* here, then we would expect <*c*> or <*k*> in Sapper's transcription.

In the case of Chicomuceltec *chenuk* 'bean' it is impossible to tell whether there word-final *k* was labialised, but not heard or transcribed, or whether it was actually not present in the Chicomuceltec.

Chc	Vcz	Pot	
<*queelte*> [S]		*k'^{w}e?lab*	'branch'
<*chenúk*> [T and S]	*čanak'^{w}*	*tsanak'^{w}*	'bean'

3.1.12 Chc *?* : Hua *?*

As we have seen in the correspondence set for *k'*, glottalised consonants do seem to be indicated at times by both Sapper and Termer. There are few instances of direct representation for the glottal stop in Chicomuceltec, though the two examples below do indicate that a glottal stop was heard in the Chicomuceltec, but that the transcription system used was inadequate to represent it:

Chc	Vcz	Pot	
<*uit* >	*wi?*	*wi?*	'mouth'
<*chiic*>	*ci?ik*	*tsi?ik*	'sweet'
<*c'oon*>	*k'o?on*	*k'o?on*	'naval'

The final *t* in Chc <*uit*> 'mouth' may be a glottal stop misheard. The double *ii* in Chc <*chiic*> 'sweet' and the double *o* in <*c'oon*> 'naval' may represent the medial glottal stop found in the Huastec correspondences, in particular since no vowel clusters are permitted in Mayan languages. It is possible however, that the sporadic occurrence of double vowels in the Chicomuceltec sources

are representations of vowel length. Medial glottal stops in Huastecan may have been elided in Chicomuceltec, with a consequent merging and lengthening of the original vowels.

3.1.13 Chc *m* : Hua *m*

m in Huastec consistently corresponds to *m* in Chicomuceltec:

Chc	Vcz	Pot	
<*mul*>	*mul*	*mul*	'pitcher'
<*kima*>	*k'ima:?*	*k'ima:?*	'house'
<*olom*>	*olom* 'pig'	*olom* 'pig'	'mouse'

3.1.14 Chc *n* : Hua *n*

The correspondence set involving *n* is also consistent:

Chc	Vcz	Pot	
<*nakat*>		*nakat*	'long'
<*chenuk*>	*čanak'^{w}*	*tsanak'^{w}*	'bean'
<*c'oon* >	*k'o?on*	*k'o?on*	'naval'

3.1.15 Chc *l* : Hua *l*

This is a consistent correspondence:

Chc	Vcz	Pot	
<*hohol*>	*bohol*	*bohol*	'corn cob'
<*ale*>	*ale*	*ale*	'corn field'
<*lejem*>		*lehem* 'lake'	'deep'
<*jol*>	*ho:l*	*ho:l*	'cave'

3.1.16 Chc *s* : Hua *θ*

In this correspondence set Chicomuceltec retains the *s* found in most Mayan languages, while both dialects of Huastec have the innovative *θ*. *θ* does not exist in the Chicomuceltec phonemic inventory[6]. Huastec has no *s*.

Chc	Vcz	Pot	
<*sanich*>	*θanic*	*θanits*	'ant'
<*sot*>	*θut'*	*θut'*	'bat'
<*pes*>	*peθoy*	*peθob*	'broom'
<*sapup*>	*θapup*	*θapup*	'cord, string'

There are two exceptions to this correspondence, where <*tz*> is transcribed for the Chicomuceltec form. In both cases there are alternative transcriptions with the expected *s*, suggesting that, as in the case with Chc *č* (cf. 3.1.7) these are also instances of mishearing.

Chc	Vcz	Pot	
<*tzam*> [T] [S: <*sam*>]	*θam*	*θam*	'nose'
<*tzuk'u chak'u*> [S]	[*č'apuw*]	[*ts'apuw*]	'salty'

Termer's <*tzam*> 'nose' is recorded by Sapper as *sam*, indicating that Termer's form is a mishearing. There is considerable variation between *ts* and *s* variants in the cognates for 'nose' across Mayan languages, which may also play a role here. Sapper's <*tzuk'u*> is possibly an aberrant transcription of *sucu* (some form of adjectival intensifier, cf. appendix I) which is transcribed elsewhere by Sapper himself as <*sucu*> (e.g. <*sucu pulic*> 'big'; <*sucu uich*> 'far').

3.1.17 Chc *š* : Hua *š*

Hua *š* consistently corresponds to Chc *š*, though Termer and Sapper's orthography is variable.

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[6] It is possible, though unlikely that Chicomuceltec had /θ/ but was misheard or misrecorded as /s/.

Mostly <*x*> is used to represent *š* though occasionally <*ch*> can be found, as in Termer's *chich* 'blood', which may represent š, given that Sapper has the expected <*x*>.

Chc	Vcz	Pot	
<*ex*>	*e:š*	*e:š*	'basket'
<*xal*>		*šal* (archaic)	'cheek'
<*yaxni*>	*yašni?*	*yašni*	'green'
<*chich/xich*>	*šič'*	*šiʦ'*	'blood'

3.1.18 Chc *h* : Hua *h*

h is shared by Huastec and Chicomuceltec in the same environments. Termer and Sapper generally use <*j*> to represent this phoneme, though *h* can also be found (e.g. *ahau* 'drum').

Chc	Vcz	Pot	
<*alam jototz*>	*hotoč*	*hoto:ts*	'armpit'
<*jol*>	*ho:l*	*ho:l*	'cave'
<*ahau*>	*ahab*	*ahab*	'drum'
<*lejem*>		*lehem* 'lake'	'deep'

3.1.19 Chc *y* : Hua *y*

Hua *y* also consistently corresponds to Chicomuceltec *y*. In Termer's and Sapper's notes this is mostly represented by <*y*>, though occasionally by <*i*> (especially word-finally, for example <*vuai*> 'corn ear').

Chc	Vcz	Pot	
<*vuai*>	*way?*	*way?*	'corn ear'
<*yaxni*>	*yašni?*	*yašni?*	'green'
<*sucu yan*>	*ya:n*	*ya:n*	'much/many'

3.2 Vowels

The vowels in Chicomuceltec and Huastec generally correspond to each other, though it can not be ascertained whether Chicomuceltec also had vowel length, as it is not indicated in the sources, except possibly on occasion where double vowels are transcribed, though this could be an attempt to mark a medial glottal stop.

Chc	Vcz	Pot	
<*vitím*>	*bitsim*	*wičim*	'deer'
<*itz* >(S: *ich*)	*i:č'*	*i:ts'*	'moon'
<*te*>	*te?*	*te?*	'tree'
<*ex*>	*e:š*	*e:š*	'basket'
<*tucúl* >	*tsukul*	*čukul*	'stomach'
<*chul*>	*ču:l*	*tsu:l*	'flute'
<*olom*>	*olom* (pig)	*olom* (pig)	'mouse'
<*jol*>	*ho:l*	*ho:l*	'cave'
<*pat* >	*pats*	*pač*	'pot'
<*sucu yan*>	*ya:n*	*ya:n*	'much/many'

There are a number of exceptions to the vowel correspondences:

Chc	Vcz	Pot	
(a) **e**	**a**	**a**	
<*chenúk*>	*čanak'^{w}*	*tsanak'^{w}*	'bean'
<*mep*>	*ma:p*	*ma:p*	'coyol palm'
<*en*>	*ahin* (alligator)	*ahin*	'crocodile'
<*et em*>	*at'em*	*at'em*	'salt'
(b) **i**	**a**	**a**	
<*chic eu*>	*čak'ib* [but: *čihow* 'smelling like sweat']	*tsák'ib* [A]	'sweat'
(c) **u**	**o**	**o**	
<*chochun*>	*č'oč'on*	*ts'ots'on*	'dew'
<*tuxux*>		*tošoš*	'spindle'

(d) **o**	**u**	**u**	
<ou>	*uh*	*uh*	'avocado'
<sot>	*θut'*	*θut'*	'bat'
<kovák>	*k'ubak*	*k'ubak*	'hand'
(e) **a**	**i**	**i**	
<ichác>	*ičik'*	*itsik'lek*	'fingernail'
<vuaxak te eu>		*wašik*	'8'
<jilam>		*hilim*	'oak'

In (a), (b) and (c) the Chicomuceltec vowel is fronted, (Chc *e* : Hua *a* , Chc *i* : Hua *a* and Chc *u* : Hua *o*). In (d) and (e) the Huastec vowel is fronted (Chc *o* : Hua *u* and Chc *a* : Hua *i*). These cases do not appear to be the result simply of mishearing on the part of Sapper or Termer, first given that in many cases ('crocodile', 'sweat', 'spindle', 'bat', 'hand', 'fingernail' and '8') both transcribers have the same vowel listed (in the rest of the cases only one author has the word listed at all) and second, as we shall see in the following section on Proto-Mayan, in many cases the Chicomuceltec form matches the vowel of the Proto-Mayan form, suggesting that in some cases a vowel shift occurred in Huastec.

An analysis of these vowel changes may be found in 4.2.2.

Chapter Four

From Proto-Mayan to Proto-Huastecan; from Proto-Huastecan to Huastecan

Having interpreted the Chicomuceltec sources philologically and established the Chicomuceltec and Huastec sound correspondences, we shall now turn to the question of the nature of the Proto-Huastecan phonemic inventory and the sound changes that occurred from Proto-Mayan to Proto-Huastecan, and from Proto-Huastecan to Chicomuceltec[7] and Huastec.

Kaufman (1980:102) notes that typical Mayan languages will have around 500-600 identifiable Mayan etyma. In Huastec the number is a mere 300 or so. Given the relative paucity of Proto-Mayan vocabulary in Huastec, there are not always enough data to assert with confidence the phonological developments of Huastecan from Proto Mayan in every case. This is particularly so with certain PM phonemes which themselves have a very restricted rate of occurrence in the PM reconstructed vocabulary, such as **$\underset{\frown}{t}$' **$\check{c}$ and **$\check{c}$'. With some Proto-Mayan phonemes there are more etyma with which to work, but the phonological shifts from Proto-Mayan to Huastecan are more complex and so despite having more vocabulary at hand there is still not enough to determine with certainty the phonological conditions governing various sound changes in these cases. This is particularly apparent with PM **w, **η and **h, which each have a complex series of sound shifts. The bulk of PM phonemes are however more straight forward in terms of their Huastec and Chicomuceltec reflexes. The PM voiced and voiceless labial stops, the nasals, the uvular stops, the voiceless palato-alveolar fricatives, **r, **l, **y , as well as **x all have consistent and frequent enough Huastec and Chicomuceltec reflexes in the correspondence sets to be able to establish the sound changes for these phonemes.

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[7] In this chapter I have standardised the original orthographies used in the Chicomuceltec sources to conform to that of the Huastec and Proto-Mayan forms (cf. Appendix II). I have, however, ommitted glottalisation unless it is marked in the original sources. Vowel length is also not marked, as it is not marked in the original forms.

The most commonly accepted proposed phonemic inventory of Proto-Mayan is:

p t ţ ts č k q ʔ		*i(:) u(:)*
b' t' ţ' ts' č' k' q'		*e(:) o(:)*
m n ŋ		*a(:)*
s š x		
l		
r		
w y h		

Figure 5. Proto-Mayan phonemic inventory (Campbell 1985:190)

4.1 Consonants

4.1.1 PM ***p* > PH **p* > Chc/Hua *p*

This is a very consistent reflex. Proto-Mayan ***p* is retained by Huastec and Chicomuceltec in all environments.

Chc	Vcz	Pot	PM	
mep	*ma:p*	*ma:p*	***map*	'coyol palm'
pat	*pats*	*pač*	***pat*	'pot'
petpet	*pet*	*pet*	***pe:ts*	'turtle'

4.1.2 PM ***b'* > PH **b* > Chc *w*, Hua *b*

PM ***b'* is retained in Huastec, and became *w* in Chicomuceltec, both initially and finally in the morpheme. I shall assume here that the Proto-Huastecan phoneme was *b,* though it could conceivably have been imploded, as in Proto-Mayan, especially in light of the fact that the non-

final allophone of *b* in one dialect of Huastec, Chontla[8], is *[b']* (cf. 3.1.2).

Chicomuceltec presumably merged *b* with *w* after the Huastecan split.

Chc	Vcz	Pot	PM	
way?	*ba:y*	*ba:y*	***b'ay*	'brother-in-law'
čawal	*čaba:l*	*tsaba:l*	***kab'al*	'ground'
kowak	*k'ubak*	*k'ubak*	***q'ab'*	'hand'
tuh	*tubay*	*tubkayal*	***t^{y}uhb/'tsub'*	'saliva'
čawičič	*čabk'i?*	*tsabq'ui'*	***ka:b' (e)xer*	'day before yesterday
aw	*a:b*	*a:b*	***ŋab'*	'rain'
ahaw	*ahab*	*ahab*	***wahb'*	'drum/guitar'

The only exception to this cognate set is the reflexes for PM ***yab* 'much', which have an unexpected final *n*. It is possible that the Huastec forms and the Proto Mayan are not actually cognate with the form in the other Mayan languages upon which ***yab* is reconstructed, or, alternatively, that Huastecan *–n* may be an adjectival ending.

Chc	Vcz	Pot	PM	
yan	*ya:n*	*ya:n*	***yab'*	'much'

4.1.3 PM ***$\underset{\frown}{t}$ > PH *t > Chc/Hua *t*

PM ***$\underset{\frown}{t}$* became Huastecan *t*, at least word-initially. There is less information regarding Huastecan reflexes of the PM sound word-finally; the only examples of this are the Huastecan correspondences of PM ***pe:t^{y}* 'tortoise', and ***a$\underset{\frown}{t}$* 'penis'. Kaufman (1964) has also given an alternative form for ***pe:t^{y}*: ***pe:ts*, to which the Huastecan forms would also conform via the ***ts* > *t* change (see 4.1.5). ***a$\underset{\frown}{t}$* 'penis' corresponds to <*at*> 'penis' from Tapia Zenteno[9].

[8] Kaufman (1985:475) has noted that Chontla is the most conservative of the Huastec dialects, phonologically and morpho-syntactically.

Kaufman, in his proposed sound changes for Huastec historical phonology (1980:103), has PM **$\underset{\frown}{t}$* shifting to an intermediate Huastecan derivation of **t*, and then becoming t^{y} /__ *i, u*. (Kaufman uses t^{y} to represent Potosí *č*, Veracruz *ts)*. This is erroneous, however. As can be seen from the data below there are no cases in which PM **$\underset{\frown}{t}$* becomes a Potosí *č*, or a Veracruz *ts*. Kaufman's intermediate derivation of **t* is however consistent with the fact that all of Chc, Vcz and Pot share *t* as the reflex of PM *$\underset{\frown}{t}$*, suggesting that the Proto-Huastecan form was also **t*.

Chc	Vcz	Pot	PM	
tay	*tay?*	*tay'*	**$\underset{\frown}{t}$a?η*	'ashes'
tak'in	*tak'in*	*tak'in*	**$\underset{\frown}{t}$a-q'i:η*	'silver'
te	*te?*	*te?*	**$\underset{\frown}{t}$e:?*	'tree'
	tokow	*tokow*	**$\underset{\frown}{t}$oq-al*	'cloud'
tuh	*tubay*	*tubkayal*	**t^{y}uhb'* [K]	'saliva'
			**tsub*	
		lak-tem 'bench'	(**t^{w}em* [K]	'bench')
			**t^{y}em* [K]	'boat'
		tek'-θ-a:l 'cook'	**t^{y}aq'-aη* [K]	'cooked'
petpet	*pet*	*pet*	**pe:t^{y}l*	'tortoise'
			**pe:ts* [K]	
		<*at*> [Tz]	**?$\underset{\frown}{a}$t* [K&N]	'penis'

4.1.4 PM **$\underset{\frown}{t}$' > PH *t' > Chc/Hua *t'*

PM **$\underset{\frown}{t}$'* is a problematic phoneme for which to establish the Huastec reflexes, due to its very limited occurrence in the PM reconstructed vocabulary. There is only one example of the phoneme in the entire reconstructed list: **huh$\underset{\frown}{t}$'* 'opossum' which is reflected by Huastec *u:t'*. There is no cognate to this in the Chicomuceltec vocabulary lists. This sole example does fit the pattern which appears to apply to the Proto-Mayan non-glottalised counterpart, yet given the lack of data this correspondence cannot be established with complete certainty. On the basis of the plain form, I shall assume that PM **$\underset{\frown}{t}$'* became Proto-Huastecan **t'*.

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[9] In modern Huastec *at* has the meaning of 'of the same species, class'.

Chc	Vcz	Pot	PM	
	u:t'	*u:t'*	***huḫt'*	'opossum'

4.1.5 PM **ts* > PH **t* > Chc/Hua *t*

As with PM **ṯ*, PM **ts* is also reflected by *t* in both Chicomuceltec and Huastec:

Chc	Vcz	Pot	PM	
	tu?	*tu?* 'gourd bowl'	***tsuh*	'water gourd'
	tima?	*tima?*	***tsima(h)*	'gourd bowl' (early MZ loan)
petpet	*pet*	*pet*	***pets/pet^{y}* [K]	'turtle'
tuh	*tubay*	*tubay* 'spit on'	***tsub/t^{y}uhb'* [K]	'saliva'
	taka?	*taka:l* 'to touch, try'	***tsaq* [K]	'to take, select'
	te?en	*te?-n-al*	***tse?* [K]	'to laugh'
	tehtey	*tehtey*	***tseh* [K]	'raw'

There are certain difficulties with these cognate sets however. Huastec *tima?* 'gourd bowl' is an early MZ loan, and two PM reconstructions of Kaufman's have alternative forms (***pets/pet^{y}* and ***tsub/t^{y}uhb'*), which renders these correspondences less reliable. Apart from ***tsuh* 'water gourd', the remaining examples are taken from early reconstructions of Kaufman's (1964). Bearing these factors in mind, it nevertheless appears that PM ***ts* also became *t* in Chicomuceltec and Huastec, given that the reflexes are consistently *t* in Chicomuceltec and Huastec. On the basis of this, PH **t* seems the most probable corresponding Huastecan phoneme. Thus, PM **ṯ* and ***ts* merge in Huastecan to **t*. This is consistent with the two forms given by Kaufman for 'turtle' (***petspet^{y}*) and 'saliva' (***tsub/t^{y}uhb'*) since both of these phoneme alternatives fit with the expected reflexes in Huastec and Chicomuceltec if the two PM phonemes merged in Huastecan.

4.1.6 PM **ts'* > PH **t'* > Hua/Chc *t'*

While the non-glottalised PM ***ts* appears consistent in its Huastec reflexes, the PM glottalised ***ts'* is not. In correspondence set a) PM ***ts'* is reflected by *ts'* in the Potosí dialect and by *č'* in

the Veracruz dialect and in Chicomuceltec. In set b) the reflexes of the PM form are all *t'*, in accordance with the reflexes of its non-glottalised counterpart (with the one exception of the Chc *tsinté* 'sweet manioc', which appears to be the result of metathesis subsequent to the Huastecan split).

a) PM ***ts'* > Chc/Vcz *č*, Pot *ts*:

Chc	Vcz	Pot	PM	
čičin	*č'ičin*	*ts'itsin*	***ts'ikin* 'bird'	
čehet 'thigh'	*č'ehet* 'thigh'	*ts'ejet* 'thigh'	***ts'eh* [K]	'side, flank'
		[*ts'a:k* 'tlapechtli[10] table'	***ts'aq* [K]	'cement (wall)']

b) PM ***ts'* > Chc/Hua *t'*:

Chc	Vcz	Pot	PM	
<*tsinté*>	*t'intse?*	*t'inče*	***ts'ihn* [K]	'sweet manioc'
	t'uθub	*t'uθub* 'mountain grape'	***ts'usub* [K]	'grape'
	t'u? 'flesh of the body'	*t'u:?* 'naked child, plucked chicken'	***ts'u?un*	'feather, skin'
et em	*at'em*	*at'em*	***a:ts'-a:n*	'salt'
sot	*θut'*	*θut'*	***so:ts'*	'bat'
		mut'uhual	***muts'* [K]	'close the eyes'

It is possible that Huastecan underwent a split in its reflexes of PM ***ts':* preceding front vowels it became *č'* (later *ts'* in Potosí), preceding back vowels it became *t'*, given that the bulk of the items in these two sets conform to this split. (Pot *ts'a:k* in set a) may not be cognate with PM ***ts'aq* as the two words are not semantically identical).

[10] '*Tlapechtli* is a structure of twigs or cane joined in parallel and used in traditional houses for beds, shelves or tables.

The Huastecan reflexes of PM **_ts'ihn_* 'sweet manioc', the one item in set b) where **_ts'_* precedes a front vowel, are unusual. We have already seen in chapter three (cf. 3.1.4) that the Veracruz and Potosí forms would have originally been made up of a compound with the word for 'tree' _te?_ (note the Chicomuceltec form which retains the component _te?_ in the word), and have most likely undergone metathesis to avoid the combination of _ts'_t_ (in Vcz) and _č'_t_ (in Pot), a combination which seems to have had a co-occurrence constraint operating on it in Huastecan (cf. 2.4.1.4). This means that the original forms would have been _ts'inte?_ (in Vcz) and _č'inte?_ (in Pot), which do not correspond to the rest of the reflexes in set b) or those of set a). The cognate set for 'sweet manioc' is therefore particularly aberrant. If, because of this aberrance, we do not take this cognate set into account, then all the items in set b) involve back vowels, and all items in set a) involve front vowels.

There are certain anomalies in set a), however, which suggest that this series is less reliable than set b). In the case of PM _ts'ikin_ 'bird', it should be noted that there are no instances of the occurrence of _t'_ followed by _č_ in Vcz and _t'_ followed by _ts_ in Pot in the data I have at my disposal (cf. 2.4.2.3), suggesting that there is a constraint on the co-occurrence of these consonants. This may account for the actual reflexes of **_ts'ikin_*. Given that Chicomuceltec also follows the divergent reflex of the Veracruz dialect in this instance, we can assume that this constraint was effective in Proto-Huastecan.

In the case of PM **_ts'eh_* 'side, flank', Kaufman's (1964) PM reconstructed form may not be not based on enough Mayan languages to produce an accurate reconstruction (he does not list the cognates in the Mayan languages on which the PM reconstructed form is based). In any case this particular piece of reconstructed PM vocabulary does not appear in Fox's (1978), Kaufman and Norman's (1984) or Campbell's (1988) lists. Huastecan 'thigh' is not semantically identical to the meaning of the PM word 'side, flank', so it is possible that they are not actually cognate.

Given the fact that non-glottalised PM **_ts_* has the consistent reflex of _t_ in Huastecan (for both front and back vowels), and that the largest and most reliable correspondence set for the Chicomuceltec and Huastec reflexes of PM **_ts'_* is _t'_, we can probably assume that this is the

typical correspondence. PH *t' is the most likely Huastecan reconstruction, given that both daughter languages share it.

There is also one further correspondence which forms an exception to both the above sets:

Chc	Vcz	Pot	PM	
	tsunum	*čunun*	**ts'u:nu?n*	'hummingbird'

Here the Huastec forms display the typical reflexes of PM **t* (see 4.1.7). The Huastec forms, moreover, are not glottalised. The fact, however, that semantically the Proto-Mayan matches the Huastec forms means that this is unlikely to be accidental. There are no other incidences of PM **ts'* corresponding to Pot *č* and Vcz *ts*. It may be that the Huastec word is actually an early borrowing from another Mayan language (prior to the Potosí shift from *ts* and *ts'* to *č* and *č'*). The glottalisation may have been lost in the process. The lack of glottalisation may also be accounted for by the fact that Vcz *ts'* and the corresponding Pot phoneme *č'* are not very productive phonemes. As mentioned previously, in the Veracruz dialect of Huastec *ts'* is disappearing, and is now sometimes found in free variation with *ts* (Ochoa 1978:27). Interestingly, the Itzá form *tsunu?n* is also not glottalised; the rest of the Mayan languages with the cognate (the word occurs in all major branches of the family) have the expected glottalisation.

4.1.7 PM **t* > PH **ṭ* > Chc *t*, Vcz *ts*, Pot *č*

Again, there are very little data here to work from. It seems, however, that PM **t* is reflected by Chc *t*, Vcz *ts* and Pot *č*:

Chc	Vcz	Pot	PM	
pat	*pats*	*pač*	**pat*	'pot'
	atsin	*ačin*	**atin*	'to bathe'

While there are very few examples for this PM phoneme, there are enough examples of this particular correspondence set in Huastec and Chicomuceltec, as was seen in the previous chapter,

to demonstrate that they form a distinct correspondence set for a particular PH phoneme and thus perhaps a PM phoneme.

Chc	Vcz	Pot	
wal wičit		*<zam u ychich>* (TZ)	'chest'
witim	*bitsim*	*bičim* 'horse'	'deer'
		wičim 'deer'	
watiw	*watsib*	*wačib*	'dream'
tutenek		*t'učenek*	'full'
k'ita	*k'i:tsa*	*k'iča*	'day'
pat	*pats*	*pač*	'pot'
tukul	*tsukul*	*čúkul*	'stomach'
panatika	*tsik*	*čik'*	'urine'

The only PM phoneme that appears to represent this sound correspondence set in Huastec and Chicomuceltec is ***t,* as shown above.

There are at least two possible exceptions to this involving PM ***t:*

Chc	Vcz	Pot	PM	
nakat	*nakat*	*nakat*	***naxt* 'far'	'long''
		ta:ta	***ta:t*	'father, god'

Huastecan *nakat* 'long' may not actually be cognate with the forms in other Mayan languages upon which the ***naxt* 'far' reconstructions are based, as they are not semantically identical (though admittedly similar) and do not have the expected reflex of ***x* (***x* > *h* in Huastecan. cf. 4.1.28). The reflexes of PM***ta:t* 'father, god' may be a non-inherited similarity, as they are nursery forms. Alternatively it may have been borrowed from elsewhere. Kaufman (1980:105) has highlighted a number of lexical similarities between Huastec and Coahuiltec, an extinct language once spoken north of Huastec in north-eastern Mexico/Southern Texas. He connects the Coahuiltec word *t'atāl* ('woman's elder brother') with the Huastec word *ata:tal* ('man's brother' in Pot, 'fellow, brother-in-law' in Vcz). It is possible that this may also be the source of Hua *ta:ta*, as they are phonologically very similar. It may have been borrowed subsequent to the sound shift ***t* >

Chc t, Vcz ts, Pot č. There is in any case no Chicomuceltec correspondence to indicate that the word dates to the Proto-Huastecan period.

Initially it appears that the most probable Proto-Huastecan reconstruction for this phoneme would be **t,* given that it seems that Chicomuceltec has retained the PM form, which in turn suggests that Veracruz and Potosí have undergone a subsequent shift from an original PH **t.* However, given that PH **t* has already been shown through consistent cognate sets to have descended from PM ***t̆,* with the modern Huastec and Chicomuceltec reflexes of *t,* another PH phoneme must therefore have evolved the modern reflexes apparent in the correspondence set: Chc *t* : Vcz *ts* : Pot *č.* I suggest PH **t̆* for this phoneme. There are a number of factors which contribute to this reconstruction.

First is the existence of various Huastecan loanwords in Nahua and Spanish. Huastec and Nahua have been in direct contact in Huastec regions since about 1430 (Kaufman: 1985:474). Spanish has been introduced in the area since about 1530. Kaufman (1985:474) has noted a number of borrowings of tree names into Nahua and Spanish from Huastec which have *č* for both what is now Vcz *č* and Vcz *ts*:

Vcz	Nah	Sp	Latin binomial
čo:te?	*čo:te*	*čote*	'Parmentiera edulis'
čakah	*čakah*	*čaka*	'Bursera simaruba'
akits	*akič*	*akiče*	'Guazuma ulmifolia'
pemots	*pemo:č*	*pemoče*	'Erythrina americana'

This suggests that at the time of the borrowing, the phonemes from which Vcz *č* and *ts* (and Pot *ts* and *č*) are descended were similar enough for Spanish and Nahua speakers to borrow them as the same phoneme. A retroflexed or palatalised stop is therefore a likely candidate for the Proto-Huastecan phoneme, rather than, for example, **ts,* which presumably could have been borrowed into Nahua unchanged.

The Proto-Huastecan phoneme descends from a Proto-Mayan phoneme **t which was also a stop. The retroflex or palatalised feature would promote affrication, which, as we have seen, is reflected in both Vcz (> ts) and Pot (> $\check{c}$). The Chicomuceltec reflex t is also easily derivable from *$\underset{\frown}{t}$ or *$\dot{t}$. In sum, historical borrowings and modern Huastecan reflexes support the reconstruction of a retroflexed or palatalised stop.

Modern dialectal evidence suggests a reconstruction of *$\dot{t}$ rather than *$\underset{\frown}{t}$. Kaufman has noted that some of the Otontepec dialects of Huastec have retroflex t ($\dot{t}$) not affricated, in correspondence with Vcz ts, Pot $\check{c}$ and Chc t. The phoneme is therefore attested in reality in one of the Huastec dialects.

There is some suggestion that $\underset{\frown}{t}$ was a component of the Chicomuceltec phonemic inventory; and therefore that *$\underset{\frown}{t}$ is also plausible reconstruction. In Campbell's field-work in Chicomucelo in the 1970s, two informants familiar with some Chicomuceltec vocabulary items gave [wit^{y}im] (*$\underset{\frown}{wit}$im*) for 'deer' (in correspondence with Vcz *witsim*, Pot *wičim*) (Campbell 1988:200-201). There may therefore have been a distinction in Chicomuceltec in the reflexes of PM **$\underset{\frown}{t}$ and **ts on the one hand, and of **t on the other, with Sapper and Termer simply unable to hear or transcribe the distinction. However, given that this is based on one vocabulary item given by two informants who were not themselves native speakers of Chicomuceltec, this must remain speculation. I therefore keep *$\dot{t}$ as the Proto-Huastecan phoneme, on the basis of the existence of the phoneme in one of the modern Huastec dialects.

4.1.8 PM **t' > PH *$\dot{t}'$ > Chc t', Vcz ts', Pot $\check{c}'$

The only instance of PM **t' that has a Huastecan reflex does not actually conform to the rule that appears to apply to the non-glottalised counterpart, making this a problematic phoneme for which to establish reflexes.

Chc	Vcz	Pot	PM	
otol	*o:t'* 'leather'	*o:t'* 'leather'	**o:t' [K]	'skin, leather'

ot'(-lab) 'skin' *ot'(-lab)* 'skin'

On the basis of the reflexes of non-glottalised ***t* we can only assume that the pattern for the glottalised phoneme is the same, and that the above cognate set is aberrant. This is also suggested in light of the fact that there do exist cognate sets with Vcz *ts'* : Pot *č'* (though unfortunately there is no data for Chicomuceltec) indicating that as in the case of the non-glottalised forms, that they form a distinct correspondence set for a particular PH phoneme.

Chc	Vcz	Pot	
	ts'utsbiy	*č'učbiyal*	'point with finger'
	tsuts'um	*čuč'um*	'hard, dry toasted tortilla'
	pits'k'a?	*pič'k'an*	'break, crush'
	wits'k'on	*wič'k'on*	'return'

I reconstruct **ṭ'* as the Proto-Huastecan phoneme, on the basis of the non-glottalised data in 4.1.7.

4.1.9 PM ***č* > PH **č* > Chc/Vcz *č*, Pot *ts*

There are not enough examples in the data of possible reflexes of PM ***č* and Huastecan forms to reach any satisfactory conclusions regarding sound changes that may have taken place in this case. The only example is PM ***ča:q'* 'bed'. I have been unable to find a Veracruz dialect cognate for this. On the basis of the reflexes of the glottalised PM ***č'* (which, admittedly, are also somewhat tentative) we can only assume that the parallel non-glottalised reflexes were derived from the PM non-glottalised phoneme (see 4.1.10). Accordingly, **č* is reconstructed as the Proto-Huastecan form.

Chc	Vcz	Pot	PM	
		tsak' 'tlapechtli'[11]	***ča:q'*	'bed'

[11] See footnote 6.

4.1.10 PM **č' > PH *č' > Chc/Vcz č', Pot *ts'*

The Huastec and Chicomuceltec reflexes of PM **č' appear to be the same as those for PM **k' (cf. 4.1.11 and 4.1.12):

Chc	Vcz	Pot	PM	
	č'ok	*ts'ok*	**č'ok*	'grackle'
č'uč			** č'u č'*	'frog'
čočum	*č'oč'on 'dew'*	*ts'ots'on* 'dew'	**č'ohč'*	'earth, land'

There are, however, very few examples with Huastec or Chicomuceltec cognates, and all exhibit certain peculiarities. The reflexes of PM **č'ok are somewhat odd in that the final *k* does not become Chc/Vcz *č*, Pot *ts* (see 4.1.11). Both 'frog' and 'grackle' do tend towards onomatopoeia, so may not be typical for this reason. The final part of the sound a grackle makes ('tsok tsok') is almost identical to *[k]* (rather than an affricate). Significantly, some other Mayan languages have a final *-q*, in correspondence with Huastecan *–k* for 'grackle', presumably due to the onomatopoeic nature of the word, though the majority do reflect PM **k.

It may be that Chicomuceltec form *ch'uch* 'frog' is a later borrowing from another Mayan language of the Chicomuceltec region, as the word does not exist in either of the Huastec dialects. Vcz *č'oč'on* and Pot *ts'ots'on* 'dew' are somewhat semantically removed from PM **č'ohč'*, 'earth, land' so this too may not be a reliable cognate set. In sum, there are difficulties with the possible Huastec and Chicomuceltec cognates of the PM etyma containing the phonemes **č and **č', with the consequence that there can only be a tentative proposal for the sound change that took place in these instances, and concomitantly for the Proto-Huastecan phoneme in question. I have reconstructed this as *č on the basis of the limited data above. Proto-Huastecan therefore merged PM **č(') and **k(') to *č('). *č is the most probable reconstruction for the Proto-Huastecan reflexes of these two PM phonemes given that both the Veracruz dialect of Huastec and Chicomuceltec share the phoneme, and that there is evidence that the Potosí *ts(')* was a later

phonological development in this dialect (cf. 2.1.2).

4.1.11 PM **k > PH *č > Vcz/Chc č, Pot ts

In Kaufman's (1980:103) set of sound changes, he identifies PM **k(') as shifting to an intermediate *č(') in Huastecan and then to t^y in Huastec (from which Kaufman derives the specific dialectal reflexes of Pot č and Vcz *ts*). From the correspondences below, however, it is clear that PM **k becomes č in the Veracruz dialect of Huastec and in Chicomuceltec, and *ts* in the Potosí dialect of Huastec. There are enough examples in the list of reconstructed Proto-Mayan vocabulary with consistent Huastecan cognates and reflexes to establish this sound change.

Chc	Vcz	Pot	PM	
či	*či?ik*	*tsi?ik*	**ki?*	'sweet'
čam	*ča:m*	*tsa:m*	**kam*	'ice/to die'
ičan	*iča:n*	*itsa:n*	**ikan*	'relative'
wičil	*wič*	*wits*	**nik*	'flower'
sanič	*θanič*	*θanits*	**sanik*	'ant'
čenuk	*čanak'w*	*tsanak'w*	**kenaq'*	'bean'
ič	*ič*	*its*	**i:k*	'chile'
		šutsun	**šikin*	'ear'
		ots-el	**ok*	'to enter'

There are, however, several exceptions to this rule, which need to be analysed:

Chc	Vcz	Pot	PM	
čič	*šič'*	*xits'*	**kik'*	'blood'
	č'ok	*ts'ok*	**č'ok*	'grackle'
tuktuk	*tukum*	*tukum*	**ku?k*	'squirrel'

The expected reflex of PM *kik'* is *čič'* in Vcz and Chc, and *tsits'* in Pot. There appears to be a constraint on the occurrence of č followed by č' in Vcz, and on *ts* followed by *ts'* in Pot however (cf. 2.4.1.4), resulting in š instead of the expected initial Vcz and Chc č and Pot *ts*. This phenomenon of a shift to š also appears to occur in several examples above where only one of the

two Huastec dialects seems to have a particular constraint on the co-occurrence of certain consonants, e.g:

Pot: *tots'k'ilab* 'bar'
Vcz: *tošk'iy* 'to bar'

There are no cases in the data for the Veracruz dialect of *t* preceding *č'* in CVC morphemes (we would expect *toč'k'iy* if the Vcz form conformed to the expected sound correspondences of the Pot form). The constraint is not in the other direction, given that there are cases of Pot *t* preceding *š,* e.g. *tošoš* 'capstan, windlass'.

There are also cases where the Veracruz dialect shifts to š to avoid the combination of *t'* preceding *ts.* Again, the constraint is obviously not operating in the other direction, i.e., affecting the Pot form rather than the Vcz form, because there are instances of Pot *t'* preceding *š,* e.g.: *t'išk'oyal* 'give little to eat', *t'išt'imaθ in ičič* 'egoistic heart'

Pot: *t'učwi:la:b* 'spike or ear of grain, peg'
Vcz: *t'ušul* 'crested, pointed, like part of snow cone above rim of the glass it's in'

The Potosí dialect also displays a similar phenomenon due to an apparent constraint on *č'* following *č':*

Vcz: *ts'uts'ik* 'to mend, stop-up, cover, refill'
Pot: *šučk'iyal* 'covers it'

Interestingly, Chicomuceltec does not appear to experience the same constraint in the case of 'blood', although given that <*ch*> is occasionally found in the sources corresponding to *š* it is difficult to tell here whether the actual Chc form is *čič'* (in which case there is no corresponding constraint in Chc) or *šiš.*

'Squirrel' and 'grackle' tend toward onomatopoeia, which would account for the particularly unusual reflexes of PM **k* in these cases.

4.1.12 PM **k'* > PH *č'* > Vcz/Chc *č'*, Pot *ts'*

As with its non-glottalised counterpart, there are enough PM etyma containing **k'* with consistent Huastec and Chicomuceltec cognates to identify the sound shift for this PM phoneme: PM **k'* > PH *č'* > Vcz/Chc *č'*, Pot *ts'*.

Chc	Vcz	Pot	PM	
ič	*i:č'*	*i:ts'*	***i:k'*	'moon'
čak	*č'ak*	*ts'ac*	***k'aq*	'flea'
čen	*č'e:n*	*ts'e:n*	***k'e?n*	'hill/cave'
uč	*uč'*	*uts'*	***uk'*	'louse'
patiš ačawal	*a:č*	*a:ts'*	***ak'*	'wet/to get wet'
č'a		*ts'ah* 'vine'	***k'ah(-a:m)*	'hammock'
		ts'a? –ly-al 'to buy'	***k'ay*	'to sell'

There are several unusual exceptions to this sound shift:

Chc	Vcz	Pot	PM	
ček	*ts'a?ik*	*ts'a'ic*	***k'ah*	'bitter'
	č'uk'uš		***k'uš*	'pain'
		<*kox-al-ab*> 'mask' [TZ]	***k'o:x*	'mask'
k'islim	*k'iθ*	*k'iθ*	***k'iš*	'thorn'

The reflexes of **k'ah* are consistent except for the Veracruz form, which, peculiarly, is identical to the Potosí reflex. This may be due to sound symbolism. Kaufman (1985:475) has noted that in sound-symbolic words, the Potosí dialect often has *č* in agreement with Veracruz, so it is possible that the reverse also takes place. Chicomuceltec has the expected *č* (presumably glottalised).

In the case of **k'uš* 'pain' it may be that the expected *č'* in the Huastecan forms was simply elided. The Veracruz word for 'a pulsing pain' is *č'ukč'u:l*; Pot *ts'ukts'u:l* (there is no corresponding Pot form for 'pain'), suggesting that the full form of 'pain' may once have had an

additional *č'*: *č'ukč'us*, with the final syllable then matching the expected reflexes of the PM form. Alternatively the forms may only be accidentally similar.

The initial *k* in Tapia Zenteno's example of <*kox-al-ab*> 'mask' (glottalisation was not indicated by Tapia Zenteno) is difficult to account for, if it is an accurate transcription and cognate with the PM form.

The Chicomuceltec and Huastec reflexes of PM **k'iš* 'thorn' are exceptionally odd. The expected Huastecan forms would be Chc and Vcz *č'iš*; Pot *ts'iš*, that is, neither the PM **k'* nor the **š* have the expected reflexes in Huastecan. These Huastecan forms, according to Kaufman (1980), are evidence of what he calls "Submerged Northern Mayan" (SNM), a hypothetical Mayan language, now extinct and lacking close relatives in the Mayan language family, which may, like Huastec, have migrated north at some stage, separating from the Mayan mother tongue. Kaufman (1980:102) postulates that the borrowing of certain vocabulary items of SNM into Huastecan may account for the existence of a number of apparently Mayan words that do not conform to the expected sound correspondences in Chicomuceltec and Huastec. This is an intriguing possibility and it is clear in any case that the existence of these reflexes is particularly hard to account for. Kaufman (1980:109) also cites the Potosí form *kiθa:b* 'bad' as corresponding to PM **ki:s* 'fart'[12] as further evidence of this peculiar retention of PM **k* in Huastec.

There are however certain difficulties with Kaufman's SNM theory. First, 'thorn' is not a particularly likely candidate for borrowing, and second, it also presupposes certain migratory paths for Huastecan that have not yet been proven (cf. 5.2). Given that there is also a Chicomuceltec cognate: <*kislim*>, which corresponds to the Huastec forms in the expected way (*s* : *θ*), if the word was borrowed from some otherwise undocumented Mayan language removed from the rest of the family, then this borrowing must have occurred before the Huastecan split. There is not yet any particularly convincing evidence however, that Chicomuceltec ever migrated from the present Huastec region, or was anywhere other than in the Chicomuselo area.

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[12] Kaufman (1980:109) notes that the same semantic development has taken place in Yucatec

It may be that certain phonological rules, rather than obscure borrowing, account for the odd Huastecan reflexes of PM **k'iš. As can be seen from the examples below, there do not appear to be any constraints on Vcz č' and Pot ts' occurring before š, examples of the occurrence of such a combination include:

Vcz: *č'uš* 'owl'	*č'ošoš* 'tortilla grub'	*č'ašik'* 'chewing gum'
Pot: ts*'uš* 'owl',	*ts'ošoš* 'tortilla grub'	*ts'ašayal* 'to splash with dirt'

This would suggest that there is no reason why the expected reflexes of PM **k'iš could not occur. Closer inspection, however, has revealed that there are no instances of Vcz *č'i*, Pot *ts'i* preceding š in the data at my disposal. It may be that access to more comprehensive dictionaries will prove otherwise, or that the perceived gap is arbitrary and not the result any particular phonological constraint. It does appear, however, that there may be a particular constraint preventing the occurrence of *č'i* + š in Vcz and Chc, and *ts'i* + š in Pot, causing the retention of the PM **k'. The fact that PM **š does not have the expected reflex in Huastec and Chicomuceltec either makes this particular cognate set more problematic however. Interestingly, there are no instances of *k'i* in Vcz or Pot occurring before š either. In fact, in the Veracruz dialect, *k'* does not appear to occur before š in any environment, and in the Potosí only in one case with *k'e* (Pot: *k'eše?* 'humorous'). This may then account for why both consonants in the word do not have the expected reflexes of the PM phonemes in Huastec and Chicomuceltec, as merely retaining the PM *k'* is still creating a phonological environment that appears to have a constraint on it.

At this stage such an account is highly speculative however, and more data may reveal that another explanation is required. A second possibility for the non-conforming Huastecan words may be that an affective symbolic factor played a part, giving the word a kind of false-etymological connection with the Huastecan word for 'bad', *kiθ-ab*, causing them to become more similar phonetically. However, with so few examples this all remains speculative.

4.1.13 PM **q > PH *k > Chc/Hua k

PM **q consistently becomes *k* in Huastec and Chicomuceltec. PH *k is reconstructed on the basis of this.

Chc	Vcz	Pot	PM	
aklem	*akal*	*akal*	**aq'ab*	'night'
inik	*inik*	*inik*	**winaq*	'man'
čakni	*čakni?*	*tsakni?*	**kaq*	'red'
čak	*č'ak*	*ts'ak*	**k'aq*	'flea'
sakni	*θakni?*	*θakni?*	**saq*	'white'
akan	*akan*	*akan*	**aqan* ('leg')	'foot'

4.1.14 PM **q' > PH *k' > Chc/Hua k'

Like its plain counterpart, PM **q'* consistently becomes *k'* in Huastec and Chicomuceltec.

Chc	Vcz	Pot	PM	
ik	*ik'*	*ik'*	**i:q'*	'wind'
k'an ni	*k'anaw?*	*k'anaw?*	**q'an*	'yellow'
tak'in		*tak'in*	**ta-q'i:ŋ*	'precious metal'
k'ih	*k'ih*	*k'ih*	**q'i:ŋ*	'day, feast day'
k'ak'	*k'a:k'*	*k'a:k'*	**q'a:q'*	'hot'
čak	*č'ak*	*ts'ak*	**k'aq*	'flea'
ičak	*ičik'*	*itsik'*	**iSk'aq* [KN]	'nail, claw'

4.1.15 PM **q(') > PH *k(')o/u /__ w/y/h/? V > Chc/Hua k(')^{w}

McQuown (1955) proposed that the PM phonemic inventory had to include labiovelars to account for the presence of these phonemes in Huastec. Kaufman (1980) has shown, however, that the labiovelars in Huastec (and presumably also in Chicomuceltec) do not correspond to a particular PM phoneme, but rather appear to be the result of more recent developments in the languages' phonological history, through the absorption of *o* or *u* into *k* (or *k'*) before *w, y, h* or *?* (cf. 2.4.1.3)

There is only one definite example of a Huastecan word with a labiovelar which has a Proto-Mayan etymology, though it is not clear how the final labiovelar is derived from the Proto-Mayan form. The labiovelar is not marked in the Chicomuceltec sources, so it is unclear whether Chicomuceltec also had the labiovelar in this case.

Chc	Vcz	Pot	PM	
čenuk	*čanak'^{w}*	*tsanak'^{w}*	***kenaq'*	'bean'

There is a further possible example. It seems likely that Potosí *k'^{w}a?čim* is cognate with PM ***q'u?* 'clothing', as they are semantically identical, both are glottalised, and PM *q'u* is preceding a glottal stop, a combination which would presumably shift to a labiovelar in Huastecan.

Chc	Vcz	Pot	PM	
		k'^{w}a?čim	***q'u?*	'clothing'

Kaufman (1980:106) notes that most of the languages of north-eastern Mexico (Coahuiltec, Cotoname, Comecrudo, Karankawa) had labiovelars, so the development of labiovelars in Huastec may have been the result of areal contact. The fact that the transcriptions of Chicomuceltec also show evidence suggestive of the labiovelar (cf. 3.1.11) either indicates that Chicomuceltec split off from Huastec subsequent to this contact with these north-eastern languages, or, if Chicomuceltec was never in the Huastec area, that the acquisition of the labiovelar was borrowed into north-eastern Mexican languages from Huastec or simply a parallel development in Huastecan and in the north-eastern Mexican languages.

Given that Chicomuceltec also appears to have had the labiovelar, we can assume that the development of this phoneme was a Huastecan feature, and consequently that the Proto-Huastecan phonemes were probably **k^{w}* and **k'^{w}*.

4.1.16 PM **ʔ > PH *ʔ /V__# > Hua (and Chc) ʔ
> PH *ø /__C# > Hua (and Chc) ø
> PH *y /__ŋ# > Hua (and Chc) y

The PM glottal stop underwent a number of different developments in the transition to Huastecan. Given the fact that the glottal stop was seldom transcribed in the Chicomuceltec sources it is impossible to deduce whether or not the phoneme in Chicomuceltec underwent the same developments as in Huastec. I shall presume that the original PM **ʔ was retained in Proto-Huastecan where it is retained in Huastec, and that it underwent deletion where it is not present in Huastec. It is possible, however, that the PM glottal stop was retained in all environments in Proto-Huastecan, and that only after the Huastecan split did it undergo subsequent deletion in certain environments in Huastec and in Chicomuceltec independently of one another.

a) Morpheme-finally with a preceding vowel: the PM glottal stop is retained in Huastec.

Chc	Vcz	Pot	PM	
te	*teʔ*	*teʔ*	***te:ʔ*	'tree'
či	*čiʔik*	*tsiʔic*	**kiʔ*	'sweet'
si	*θiʔ*	*θiʔ*	**si:ʔ*	'firewood'
ča	*čaʔ*	*tsaʔ*	**kaʔ*	'millstone'

b) Before a consonant: the glottal stop is lost.

In one correspondence set the vowel preceding the glottal stop remains short:

Chc	Vcz	Pot	PM	
yašni	*yašniʔ*	*yašni*	***raʔš*	'green'

In another set the vowel preceding the PM glottal stop is lengthened. It may be that a glottal stop following front vowels causes these to lengthen in Huastec, while back vowels remain short, though the data are too limited to affirm this with any confidence.

Chc	Vcz	Pot	PM	
čen	*č'e:n*	*ts'e:n*	***k'e?n*	'hill/cave'
k'islim	*k'i:θ*	*k'i:θ*	***k'i?š*	'thorn'

c) Preceding *η*:

A glottal stop in PM followed by *η* becomes *y* in Huastec and Chicomuceltec. In the second example (*tay?* 'ashes') the glottal stop is preserved finally following the *y*.

Chc	Vcz	Pot	PM	
sini	*θiniy*	*θiniy*	**si:na?η*	'scorpion'
tay?	*tay?*	*tay?*	***ta?η*	'ashes'

4.1.17 PM ***s* > PH **s* > Chc *s*, Hua *θ*

PM ***s* is retained unchanged in Chicomuceltec and became *θ* in Huastec. The Proto-Huastecan phoneme was presumably *s, with a subsequent development in Huastec to the interdental fricative.

Chc	Vcz	Pot	PM	
sanič	*θanič*	*θanits*	**sanik*	'ant'
sot	*θut'*	*θut'*	**so:ts'*	'bat'
si	*θi?*	*θi?*	**si:?*	'firewood'
sini	*θiniy*	*θiniy*	**si:na?η*	'scorpion'
is	*iθ*	*iθ*	**i:s*	'sweet potato'
sakni	*θakni?*	*θakni?*	**saq*	'white'

4.1.18 PM ***š* > PH **š* > Chc/Hua *š*

PM ***š* is retained in both dialects of Huastec and in Chicomuceltec in most environments. It is most likely that the Proto-Huastecan phoneme was therefore also *š.

Chc	Vcz	Pot	PM	
eš	*e:š*	*e:š*	***we:š* 'pants'	'basket'

yašni	*yašni?*	*yašni*	***ra?š*	'green'
šekel-té	*šek*	*šekel*	***ša:q*	'leaf'
ušmal	*ušum*	*ušum*	***uš-/iš-*	'wife/woman'
		ša?	***ša?aw/šah*	'vomit'

The exceptions to this set involve several instances where PM **š becomes *θ* in Huastec and *s* in Chicomuceltec, i.e., they have the same reflexes as those typical for PM **s.

Chc	Vcz	Pot	PM	
k'islim	*k'i:θ*	*k'i:θ*	***k'i?š*	'thorn'
isis	*iθiθ*	*iθiθ*	***iš-i?m*	'corn kernel/maize'
	k'iθim		***q'aši:n*	'warm'
	θu:b-al		***šub'*	'to whistle'

PM ***k'i?š* 'thorn' has already been discussed (cf. 4.1.12).

In the case of the Huastecan reflexes for PM ***iš-i?m* 'corn kernel/maize', it is possible that the first *θ* (*s* in Chc) is the result of assimilation with the *–iθ* suffix. This seems particularly likely in light of the fact that the Veracruz and Potosí dialects also possess words which may stem from the same Proto-Mayan root, with the expected š reflex of Proto-Mayan:

Pot: *išiθ* 'shelled corn, kernels taken off'
Vcz*: išiy* 'to shell corn, to take off the kernels'.

The Veracruz form *k'iθim* 'warm' may be the result of the same constraints which I have suggested may have affected the Huastecan reflexes of PM ***k'i?š* 'thorn'. There are no instances of *k'i* in Vcz or Pot occurring before *š*, and, in the case of Vcz, *k'* does not appear to occur before *š* in any environment (in Pot only in one case with *k'e* (*k'eše?* 'humourous'), so a phonological constraint may be preventing the expected *š* from being realised in this case. Kaufman (1980:102) sees *k'iθim* as another possibility for borrowing from Submerged Northern Mayan (SNM).

Vcz *θu:b-al* 'whistle' is also regarded by Kaufman as possible evidence for the existence of SNM (1980:102). It may be, however, that the sound-symbolic nature of the word is simply affecting its realisation in Veracruz. This is probably also the case with a final example of PM **š* not being reflected in the expected way in Huastecan:

Chc	Vcz	Pot	PM	
chul	*ču:l*	*tsu:l*	***šul*	'flute'

The possibility that sound-symbolism is affecting the Huastecan reflexes of the PM form is supported by the fact that while most of the Mayan languages with this cognate have initial *š*, Yucatec also has *čul*.

4.1.19 PM **m* > PH **m* > Chc/Hua *m*

PM **m* is consistently reflected by *m* in Chicomuceltec and Huastec.

Chc	Vcz	Pot	PM	
mep	*ma:p*	*ma:p*	***map*	'coyol palm'
mam	*ma:m*	*ma:m*	***ma:m* [K]	'grandfather'
mul	*mul*	*mul*	***mul*	'pitcher'
im		*imil*	***i:m*	'breast'
am	*a:m*	*a:m*	***am* [K]	'spider'

4.1.20 PM **n* > PH **n* > Chc/Hua *n*

PM **n* is also consistently *n* in its Chicomuceltec and Huastec reflexes.

Chc	Vcz	Pot	PM	
sanič	*θanič*	*θanits*	***sanik*	'ant'
čenuk	*čanak*^{w}	*tsanak*^{w}	***ke:naq'*	'bean'
en	*ahin*	*ahin*	***ahyin* [K]	'alligator'
utičin 'egg'	*č'ičin*	*ts'itsin*	***ts'ikin*	'bird'
čen	*č'e:n*	*ts'e:n*	***k'e?n*	'hole, cave, hill'

4.1.21 PM **l* > PH **l* > Chc/Hua *l*

PM **l* is retained in Chicomuceltec and Huastec in most cases.

Chc	Vcz	Pot	PM	
hol	*ho:l*	*ho:l*	***xol*	'cave'
ul	*olom*	*olow*	***ŋolob'*	'egg'
čul	*ču:l*	*tsu:l*	***šul*	'flute'
čawal	*čaba:l*	*tsaba:l*	***kab'al*	'ground'
mul	*mul*	*mul*	***mul*	'pitcher'
lay	*lay?*	*tsoklay?*	***lah*	'nettle'
ilal	*ila:l*	*ila:l*	***il* 'to see'	'medicine'

There are two exceptions to this correspondence set:

Chc	Vcz	Pot	PM	
way	*ba:y*	*ba:y*	***b'al-uk*	'brother-in-law of man'
way	*way?*	*way?*	***ŋal*	'corn ear'

Here it appears that PM **l* becomes *y* in Chicomuceltec and Huastec when preceded by *a*. This is not consistently so, however, as there is also at least one instance where PM ***–al* is retained in Huastec: Hua *tsaba:l* < ***kabal* 'ground'. Other phonological conditions presumably determine whether PM **l* becomes *y* or *l* following *a* (for example depending on whether the word is monosyllabic or not), but there are not enough data available to determine what these precise conditions would be (cf. also 4.1.24 (**ŋ* > *y* /*a?*__#) and 4.1.26 (**h* > *y* /*a* or *a?*__#))

4.1.22 PM **y* > PH **y* > Chc/Hua *y*

There are very few examples of PM **y* with Huastecan cognates:

Chc	Vcz	Pot	PM	
yan	*ya:n*	*ya:n*	***yab'*	'much'
may	*ma:y*	*ma:y*	***ma(?)y*	'tobacco'

PM **yab' 'much' may not be cognate with the Huastecan forms, as the final consonant does not have the expected reflex. **ma?y 'tobacco' is diffused internally throughout the Mayan language family, so this is not a reliable cognate set either. There are therefore difficulties with this set. It can only be assumed that PM **y was retained in Huastecan. There is, in any case, no evidence to the contrary.

4.1.23 PM **r > PH *y > Chc/Hua y

Again, there are few examples of PM **r, but in the examples that do exist with Huastec and Chicomuceltec cognates the reflexes are consistent. PM **y and **r appear to merge to *y in Proto-Huastecan, with the phoneme retained in both Chicomuceltec and Huastec.

Chc	Vcz	Pot	PM	
yašni	*yašni?*	*yašuw?*	*ra?š	'green'
	wayal	*wayal*	*war	'to sleep'
	ha:y	*ha:y*	**xar	'how many'
	yahal	*yahal*	**ra:h	'pain'

4.1.24 PM **ŋ

The Huastec and Chicomuceltec reflexes of PM **ŋ are complex and are subject to a number of different changes.

Word initially, two different sets of reflexes can be observed:

a) PM **ŋ > *w* /#__

Chc	Vcz	Pot	PM	
way	*way?*	*way?*	**ŋal	'corn ear'
wew	*wew*	*wew*	**ŋe:h	'tail'

b) PM **ŋ > ø /#__

Chc	Vcz	Pot	PM	
aw	*a:b*	*a:b*	**ŋab'	'rain'

ul 'egg'	*olom* 'bald'	*olow* 'testicle'	***ɳolob'*	'egg'
yam	*iya:m*	*iya:m*	***ɳi:ʔ*	'son-in-law'
				'mother-in-law/ father-in-law'

***ɳ* may have become PH **w* word initially in all cases, with subsequent loss of the phoneme under certain conditions that cannot be determined from the limited data.

Kaufman (1980:103) has suggested ***ɳ* > *ø /#__a, i.* This may hold if the Huastecan for 'corn ear' is not actually related to the Proto-Mayan form given. The Huastecan forms for 'corn ear' do not have the expected final *'l'* reflex, if they are cognate with the PM form. We have, however, seen another apparent case where PM ***l* > *y:* ***b'al-uk* > *ba:y* 'brother-in-law of man', though there are not enough data to establish whether both of these cases are accidental similarities or actual cognates with a particular phonological rule operating on them.

***ɳolob'* 'egg' is the only example of ***ɳ* before a rounded vowel, and is not necessarily related to Hua *olow* 'testicle', since the meanings are not exact, and the final PM phoneme does have the expected Huastec reflex. Therefore what happened to ***ɳ* before rounded vowels cannot be established. However, if there was an initial shift from ***ɳ* > **w,* then in the context of *w /__V*$_r$ the *w* would presumably have been elided, given that Huastec (and possibly Chicomuceltec) does not permit *w* before *o* or *u.*

Word finally ***ɳ* most frequently became *h.* There is also a *w* reflex which occurs after *u* and possibly *o* (sometimes only in one or other of the Huastecan languages, or dialects), although the data are somewhat contradictory; and a *y* reflex which occurs after *aʔ.*

c) PM ***ɳ* > *h /__#*

Chc	Vcz	Pot	PM	
(ow)	*uh*	*uh*	***o:ɳ*	'avocado'
k'ih	*k'ih*	*k'ih*	***q'i:ɳ*	'day, feast day, sun'
tuhu	*t'uhub*	*t'uhub*	***to:ɳ/to:n*	'stone'

(hun i lahu '11')	*(la:hu)*	*la:huh*	***laxuη*	'10'
(wele te ew)	*bele:hu*	*(belew)*	***b'eleη*	*'9'*

d) PM ***η* > *w /u, o__#*

Chc	Vcz	Pot	PM	
ow	*(uh)*	*(uh)*	***o:η*	'avocado'
(wele te ew)	*(bele:hu)*	*belew*	***b'eleη*	*'9'*
	u:w	*u:w*	***huʔη*	'paper'

These final *w* reflexes may be a later development due to the influence of the preceding *u*.

e) PM ***η* > *y* or *yʔ /aʔ__#*

Chc	Vcz	Pot	PM	
tay	*tayʔ*	*tayʔ*	***t̰aʔη*	'ashes'
sini	*θiniy*	*θiniy*	***si:naʔη*	'scorpion'

The second syllable in the second example is probably due to a later development of vowel harmony with the root (cf. the vowel section of this chapter, 4.2).

As we shall see below (4.1.26), there also appears to be a shift to *y* from PM ***h /a__#*, suggesting that these two PM phonemes merged word finally to *h* in Proto-Huastecan (i.e. PM ***h* and ***η* > PH **h* > *y /aʔ__#*)

There are no PM etyma with Huastec cognates that involve word-medial PM ***η*.

The one instance where the Huastec and Chicomuceltec reflex of *η* is *n* is probably a borrowing:

Chc	Vcz	Pot	PM	
tak'in	*tak'in*	*tak'in*	***t̰a-q'i:η*	'precious metal',

(lit.: 'excrement of the sun')

The PM form **$\hat{t}a$-q'i:η 'precious metal' corresponds in the expected way to Huastec and Chicomuceltec in all its phonemes save the apparent shift from η to *n*. The word is analysable etymologically as **$\hat{t}ah$ 'excrement' and **q'i:η 'sun', a common calque in many Meso-American languages. Given that there exists a typical Huastec reflex of **q'i:η, with the expected final *h* (*k'ih*), it is most probable, as Campbell (1988:211) suggests, that *tak'in* was borrowed from an eastern Mayan language (Chol-Tzeltzal or Yucatec) where a shift from η to *n* did take place.

In sum the Huastecan reflexes of PM **η reveal the following Huastecan reflexes:

**η > *w* /#__ (sometimes > ϕ – possibly, as Kaufman suggests, before *a* and *i*, though the data is contradictory)
**η > *h* /__# (and **η > *w* /*u,o*__#, though there is some variability in the data)
**η > *y or y*ʔ /*a*ʔ__#

4.1.25 PM **w

The data for PM **w are limited. All examples save one involve the word-initial phoneme.

Like word-initial PM **η, word-initial PM **w also has *w* and ϕ reflexes in Huastec and Chicomuceltec, both occurring in very similar phonological environments. This further suggests that that there was a sound shift first from PM **η > *w, and then from *(*)w > ϕ in certain environments.

a) *PM* **w > *w* /#__

Chc	Vcz	Pot	PM	
	wayal	*wayal*	**war	'to sleep'
	waʔš		**waʔš	'fox' (< MZ)
wašak te ew	*wašik*	*wašik*	**waqšaq	'8'

b) *PM* ***w* > *ø* /#__

Chc	Vcz	Pot	PM	
ahaw	*ahab*	*ahab*	***wahb'*	'drum/guitar'
inik	*inik*	*inik*	***winaq*	'man'
eš	*e:š*	*e:š*	***we:š* 'pants'	'basket'
hoska	*o:?*	*o:?* 'little frog'	***wo?*	'toad'
kak te ew	*akak*	*akak*	***wahq*	'six'

***we:š* 'pants' may not be cognate with *e:š* 'basket', though they do both involve weaving materials together.

The second set, where ***w* is lost in Huastecan, has the greatest number of cognate sets. There are also certain anomalies in set a) which should be noted. Because verbs take obligatory prefixes in Mayan languages, PM ***war* 'to sleep' may not be a reliable example of a word-initial ***w*. ***wa?š* 'fox' is diffused into Mayan languages from MZ, so may not have undergone the regular sound change. The Huastecan reflex of *ø* for PM ***w* therefore appears more consistent, although set b cannot be entirely dismissed, because ***waqšaq,* '8' appears regular.

The only phonological environment that can be clearly identified as provoking a shift from word-initial PM ***w* to *ø* is preceding rounded vowels, because Huastec *w* (and possibly Chicomuceltec *w*) does not occur word-initially in this environment.

c) ***w* > *ø* /__#

There is only one instance of a word-final PM ***w* with Huastec and Chicomuceltec cognates. The final ***w* is lost in this instance:

Chc	Vcz	Pot	PM	
ahtik	*aha:tik*	*aha:tik*	***a:xa:w*	'owner'

McQuown (1984:87) has noted for the Potosí dialect that word internally, between vowels, *w* and *y* may be lost (with a subsequent fusion of the vowels preceding and following the *w* or the *y:*

ehtow + *a.mal : ehto.mal* '(to) have been able'

This is probably the explanation for the elision of PM ***w* in the case of ***a:xa:w* above.

In sum, not all that much can be established regarding the sound changes that occurred from PM ***w* to Huastecan. It appears however, that PM ***w* was retained in Proto-Huastecan and then experienced subsequent elision under certain conditions, particularly word-initially preceding rounded vowels.

4.1.26 PM ***h*

PM ***h* has the most complex set of Huastec and Chicomuceltec reflexes of all the PM phonemes.

Word initial PM ***h*

a) PM ***h* > *h* /#__*a*

PM ***h* remains *h* in Huastec and Chicomuceltec preceding *a*.

Chc	Vcz	Pot	PM	
ha	*ha?*	*ha?*	***ha?*	'water'
	hahnek 'fly'		***haxa?*	'worm, maggot'
				(Chol: *hah* 'fly')

b) ***h* /#__*o,u*

Data for the Huastecan reflexes of PM *h* preceding rounded vowels come predominantly from the number words and are somewhat contradictory. The full list of cognate sets pertaining to this phonological environment is presented below:

Chc	Vcz	Pot	PM	
<vo te eu>	*bo?*	*bo?*	***ho?*	'5'
<boteu>[T]	*lahuh bo?*	*lahuh bo?*		'15'
(*<o la te eu>* [S])				
ho inik	*bo? inik*	*bo? inik*		'100' (five twenties)
hukte ew	*bu:k*	*bu:k*	***huq*	'7'
hohol	*bohol*	*bohol*		'corn cob'
hostot			***hos*	'buzzard'

PM ***ho?* 'five' (246) and ***huq* 'seven' (248) have an initial *b* reflex in Huastec: *bo:?* and *bu:k*. No other Mayan language has an initial *b* for these number words. It may suggest a constraint in Huastec against *h* (derived from PM ***h*) before rounded vowels, similarly to *w*. The shift to *b* in particular is curious however, and it cannot be ascertained whether this was a general change, or one peculiar to the number words. The two other Proto-Mayan words with initial *h*, which have cognates in Huastec are:

Chc	Vcz	Pot	PM	
	u:w	*u:w*	***huʔŋ*	'paper'
	u:t	*u:t*	***huhṭ*	'opossum'

In both cases the *h* is simply elided. I suspect that the number words are somehow aberrant[13], and that the two forms above probably reveal the standard reflex. The data are, however, too limited to substantiate this. All that can be established is that there are no instances of PM ***h* retained unchanged before rounded vowels.

[13] Because there is an alternation between *h* and *w* in certain of the Mayan number words: ***ho?-* ***wahq-* ***huq-* ***waqšaq-* 'five', 'six', 'seven', 'eight', some Mayan languages vary in their reflexes of the initial phoneme in these numbers, with ***h* in some cases becoming *w* by analogy. (cf. Caq *wo?o?* 'five', Tzo *wo?* or *ho?* 'five'). The various Mayan reflexes of these Proto-Mayan number-words therefore do not always match the expected sound change.

Chicomuceltec reveals a different situation. *h* is retained in Chc '100' and '7', and in *hostot* 'buzzard' (PM ****hos*; no Hua cognate). There is, however, also a *w* reflex, which occurs in the number words '5' and '15'[14].

The base morpheme 'five' in 'five' and 'fifteen' (from Termer) is shared by '100' ('five twenties') yet they have different initial reflexes. I can see two possibilities for this. It may be that either the *h-* or the *w*-initial number-words were borrowed from a neighbouring Mayan language. Jakalteko has *h-* (*howeb'* 'five'; *huxeb'* 'seven'); Tzotzil has *w-* (*wo?* 'five; *wuk* 'seven'). There is in any case evidence that Chicomuceltec borrowed some of its number words from another Mayan language: the first two morphemes of Sapper's <*o la te eu*> '15' appear to be borrowed from elsewhere (cf. Q'anjobal *o lahoneb'*; Mam *o lahu*). However, if these dual reflexes are a consequence of borrowing, it is nevertheless difficult to explain why Chicomuceltec would have borrowed 'five' and 'fifteen' (but not 'seven'), or 'seven' (but not 'five' and 'fifteen').

Alternatively the Chicomuceltec initial *w* reflexes may be the result of phonological influence of the final consonant of the preceding number-word in the series; Chicomuceltec number-words from 'two' to 'ten' contain a suffix *te ew* (presumably some form of numeral classifier[15]), the final consonant of which may have had an influence on the initial consonant of the following number word. 'Fourteen' also has a final *w*. It still remains uncertain however, why 'five' and 'fifteen' would be influenced in this way, but not 'seven'.

Turning to the Proto-Huastecan level, there are three possibilities for the reconstructed PH phoneme derived from PM ****h* preceding rounded vowels:

1) PH ***b*

PM ****h /#__o,u* > PH ***b* > Chc *h* (on account of a constraint against *w /#__o,u*)

or > Chc *w* (with the cases of *h* borrowed).

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[14] Termer's initial <b> in '15' I am interpreting as a mishearing, cf. 3.1.2.

2) PH *w

PM **h /#__o,u > PH *w > Hua ø (remaining *w* in Chc, with cases of *h* borrowed; or becoming *h* in Chicomuceltec with cases of *w* borrowed).

3) PH *h

PM **h /#__o,u > PH *h > Hua ø (remaining *h* in Chc with cases of *w* borrowed).

Reconstruction (1) only holds if the Huastec number words with *b* reflexes are reliable and the ø reflexes somehow anomalous. (2) only holds if the Huastec number words are anomalous. (3) only holds if the sound shift from PM **x > *h* only occurred at a stage *later* than the proposed shift in 3), i.e., after the Chicomuceltec split. Otherwise, **h cannot have remained *h in Proto-Huastecan, because PM**x became PH *h (cf. 3.1.28) and, unlike the set of Huastecan reflexes for PM **h, was retained unchanged in all phonological environments including before rounded vowels. Thus, if both PM **x and **h became PH *h preceding rounded vowels, then *h* derived from *x* should also have become *b* (or ø) in Huastec. Conceivably, if Chicomuceltec underwent the shift from *x* > *h* independently, or did not undergo the shift at all (the transcribers simply not marking the distinction between these two sounds), then (3) would be possible.

Word-medial PM **h

c) *PM* **h > h /V__V*

Between vowels **h was retained (with the exception of the Chicomuceltec form which seems to have lost *h*, with the vowels having undergone subsequent contraction).

Chc	Vcz	Pot	PM	
en	*ahin*	*ahin*	***ahin*	'alligator'

Between a vowel and a consonant two separate types of reflexes are found. The first set *h* is retained and a vowel is inserted between it and the following word-final consonant (it may be that

[15] *te?*, for example, is a common numeral classifier in several lowland Mayan languages.

the original PM form also had a vowel between the *h* and the *b*, and that this was later contracted in the other Mayan languages on the basis of which the reconstruction was made).

d) PM **h > h+V /V__C#

Chc	Vcz	Pot	PM	
ahaw	*ahab*	*ahab*	***wahb'*	'drum'

In the second set of reflexes involving **h + C, the *h* is lost. None of these forms are word-final in Huastecan.

e) PM **h > ø /V_C (non final)

Chc	Vcz	Pot	PM	
tih	*tubay*	*tukcayal*	***t^{y}uhb'* [K]	'saliva'
tsinté	*t'intse*	*t'inče*	***ts'ihn*	'sweet manioc'
	altsik	*alčik*	***ahl*	'heavy'

There are also two cases of the **h also being lost, presumably as a result of the contraction with the PM suffix which adjoined it, or with a Huastecan suffix which was later added:

Chc	Vcz	Pot	PM	
wel	*be:l*	*be:l*	***b'e:h-el*	'road'
hilam		*hilim*	***xih*	'oak'

Word-final PM **h

Following *i*, **h appears to have been retained in Huastecan, at least on the basis of the one example:

f) PM **h > h /i__#

Chc	Vcz	Pot	PM	
<*tonacabih*>	*bih*	*bih*	***b'ih*	'name'

Following *u*, ***h* appears to have become *ʔ*, though again there is only one example:

g) PM ***h* > *ʔ* /*u*__#

Chc	Vcz	Pot	PM	
	tuʔ	*tuʔ*	***tsuh*	'water gourd'

There are two cases where ***h* became *w*:

h) PM ***h* > *w* /*u,e*__#

Chc	Vcz	Pot	PM	
čok-ow 'ring'		*ow*	***u:h*	'necklace'
wew	*wew*	*wew*	***ŋe:h*	'tail'

In the first instance with *u*, the sound shift is probably best accounted for by the fact that the preceding rounded vowel may be influencing the following consonant (cf. 4.1.24 d)).

The case of ***ŋe:h* is particularly interesting. From an analysis of Veracruz data, Kaufman (Veracruz vocabulary filecards, n.d) has observed that *h* appears to shift to *w* in certain instances where *h*+V_r+*y* (or *w*) is adjoined by *CV* , producing two forms:

bihọy 'to singe, scorch' : *biwbo:l* (< *bihoy-bo:l*) 'to go scorching ants'

pehoy 'weed, chop grass, clear out' : *pewk'aʔ* (< *pehoy-k'aʔ)* 'clear out'

wehoy 'clean out small weeds, clear out' : *wewk'aʔ* 'clear out'

It is possible that the case of PM ***ŋe:h* is also explicable in this way; that the Huastecan form may have one stage have had a suffix which influenced the development of the PM ***h*.

i) PM **h > h /e__#

Following *e*, **h appears to have been retained, though it is possible that the PM form is not actually cognate with the Huastecan words, as the meanings are not identical:

Chc	Vcz	Pot	PM	
kučehet	*č'ehet*	*ts'ehet*	**ts'eh* 'side, flank'	'thigh'

The reflexes of **h /a__# are various. There are two examples of **h becoming *y* word-finally following *a or a?* (similar to PM **η), though it is not clear whether the second is actually cognate:

j) PM **h > y /a, a?__#

Chc	Vcz	Pot	PM	
lay	*lay?*	*lay?*	**lah*	'nettle'
	k'oyob 'ladder'		**q'a?h*	'bridge'

There are also two examples of *h* becoming *?* word finally following *a:*

k) PM **h > ? /a__#

Chc	Vcz	Pot	PM	
ček	*ts'a?ik*	*ts'a'ik*	**k'ah*	'bitter'
	ba?im	*ba?im*	**b'a:h*	'gopher'

It is possible that a subsequent sound-shift took place when a suffix with initial *i* was adjoined to the Huastecan root ending in *y (y* on account of j) above), which caused *y* > *?* following *i,* i.e. **bah-im* > **bayim* > *ba?im.*

Finally, there are two cases where **h is retained following *a:*

l) PM **h > h /a__#

Chc	Vcz	Pot	PM	
	yahal	*yahal*	***ra:h*	'pain'
ča		*ts'a:h*	***k'ah*	'vine'

In the first example h is presumably retained on account of it falling between two vowels in Huastecan (cf. 4.1.26 c). PM ***k'ah* may also originally have had a vowel initial suffix which caused the retention of the h in Huastecan.

The following is the sum of the Huastecan reflexes of PM **h from the data available:

**h > h /#__a

**h > b /#__o,u (Hua) or **h > ϕ /#__o,u (Hua); **h > h_o,u (Chc), or **h > w /#__o, u (Chc)

**h > h /V__V

**h > h+V /V__C#

**h > ϕ /V_C (non final)

**h > h /i, e__#

**h > ? /u__#

**h > w /__V,y (or w) + CV

**h > y /a, a?__# [and possibly subsequently y + i > ?]

Figure 6 provides a chart of the various Huastec and Chicomuceltec reflexes of PM **η, **w and **h.

	**η	**w	**h
#__i	w, ø	ø	-
#__e	w	ø	-
#__u	-	-	ø, b (Hua); w, h(Chc)
#__o	ø	-	b (Hua), h, w (Chc)
#__a	ø, w	ø, w	h
V__C (non-final)	-	-	ø
V__C#	-	-	h+V
V_V	-	-	h
i_#	h	-	h
e_#	h	-	h, (w)
u_#	h,(w)	-	ʔ, w
o_#	h	-	-
a_#	-	ø	y, h, (ʔ)
aʔ_#	yʔ	-	y

Figure 6. Huastec and Chicomuceltec reflexes of PM **η, **w and **h

4.1.27 The possible developments of PM **η, **w and **h

Kaufman (1980) proposes the following series of sound shifts (note that Kaufman's changes to initial ʔ are the equivalent of the change to ø in my examples):

1) **h > ʔ /#_u
2) **w > b /#_V_r

**η > *h /non-initial

3) **η > *w /#_

non-init **h > $?$, y, $y?$, w, h, ϕ

4) ** w > $?$ /#_ i, a

There are several difficulties with this proposal. First, while there are examples of **h > ϕ /#__u there are also examples of **h > b (Chc w or h) /#_u (and also _o): **$ho?$ > $bo:?$ '5'; **huq > buk '7' .

Second, I have not found any examples of **w > b /#_V_r The only example I can find shifted from **w > ϕ: (though interestingly the Chicomuceltec form, if it is cognate, has an initial h here).

Chc	Vcz	Pot	PM	
hoska	*o:?*	*o:?* 'little frog'	**wo?*	'toad'

If there is evidence for Kaufman's proposed shift, then there is a parallel with those cases where **h > b in Huastec, and this would the support the possibility of an intermediary shift of h > w /o,u__# , though it would not explain the loss of w in the example above (**$wo?$ > $o:?$ 'toad, little frog'), or **$hu?\eta$ > $u:w$ 'paper'.

Third, with regard to Kaufman's no. 4), there are not only examples of ** w > ϕ /#__ i,a but also cases where **w is retained unchanged (e.g.: **war > Pot/Vcz $wayal$ 'to sleep'; **$waqšaq$ > $wašik$ '8' etc), though admittedly, these forms are less reliable (cf. 4.1.25). There is also one case of **η > w /#__i,a ($way?$ < PM **ηal).

On the basis of the Huastecan reflexes of PM **h, **w, **η as they occur in the data, I propose the following scenario for the order of the sound changes from PM > PH > Huastec and Chicomuceltec, with the acknowledgement, however, that the paucity of the data prevents many firm assertions.

a) – d) refer to chronological stages in the sound-shifts. Where there are multiple sound shifts under a letter there is no particular order in which they occurred within that stage.

a) **η > *h /__#
**η > *w /#__

b) either: *(*)h > *w /#__o,u (Chc: remains w or > h)
or: *(*)h > *b > Chc (w) > h
or: *(*)h > *h > Hua ø (in which case **x > h occurred at the Huastec, not the Proto-Huastecan stage, i.e., after this shift)

c) *(*)w > ø /#__o, u (at least in Huastec; possibly > h in Chc) and in certain cases > ø / #_a, i, though the precise phonological conditions for the shift to ø cannot be determined from the limited data)[16]

d) *(*)h > y /a, a?_#

Alternatively, **η > *w in all environments, with *(*)w later becoming *h /__# (except after rounded vowels where w was retained). An initial shift of **η > *h in all environments does not seem likely, because there would accordingly have had to have been a secondary shift from *h > w or ø /#__ to account for the cases of **η > *w or ø /#__ but this then would not account for the fact that **h remained h word initially, e.g. **ha? > ha? 'rain'.

4.1.28 PM **x > PH *h > Hua/Chc h

This is a consistent correspondence set, with the one exception of PM **naxt 'long, far' mentioned above. It is possible that the original PM form was **naqt, with **q becoming h or x to avoid the consonant cluster in most Mayan languages, while in Huastecan a vowel was inserted and the stop retained for the same reason. Alternatively, as mentioned earlier, the Huastecan forms may not actually be cognate with the PM word.

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[16] I presume that **w cannot have become ø word-initially before any vowel in all possible phonological environments in Huastecan, given that w frequently occurs word-initially in Huastec and Chicomuceltec, and must presumably have been derived from **w or **η in certain environments.

Chc	Vcz	Pot	PM	
ahtic	*aha:tik*	*aha:tik*	***a:xa:w*	'owner'
čo	*čoh*	*tsoh*	***kox*	'jaguar'
hol	*ho:l*	*ho:l*	***xol/xul*	'cave'
hilam		*hilim*	***xih*	'oak'
ča		*ts'a:h*	***k'ah*	'vine'
		tah-ba-yal ('burns it')	***t̂ax*	'pine'
		ha:y	***xay* [K]	'how many?'
nakat	*nakat*	*nakat*	***naxt*	'long/far'

4.2 Vowels

The Huastec and Chicomuceltec[17] reflexes of PM vowels are generally the same as the PM forms, as the following examples illustrate:

Chc	Vcz	Pot	PM	
sanič	*θanič*	*θanits*	***sanik*	'ant'
čak	*č'ak*	*ts'ak*	***k'aq*	'flea'
mam	*ma:m*	*ma:m*	***ma:m*	'grandson, nephew, grandfather'
k'ak'	*k'a:k'*	*k'a:k'*	***q'a:q'*	'hot'
wele te ew	*bele:hu*	*belew*	***b'eleɳ/b'eluɳ*	'9'
wel	*be:l*	*be:l*	***b'e:h-el*	'road'
<bih>	*bih*	*bih*	***b'ih*	'name'
en	*ahin*	*ahin*	***ahin*	'alligator'
ič'	*i:č'*	*i:ts'*	***i:k'*	'moon'
čo	*čoh*	*tsoh*	***kox*	'jaguar'
	č'ok	*ts'ok*	***č'ok*	'grackle'
oš te ew	*o:š*	*o:š*	***o:š*	*'3'*
mụl	*mul*	*mul*	***mul*	'pitcher'
ušmal	*ušum*	*ušun*	***uš-/iš-*	'wife/woman'

(there are no examples of ***u:* with Huastecan correspondences)

[17] Vowel length is not marked in the Chicomuceltec sources

4.2.1 Vowel length

While there are many examples where Huastec reflexes of PM vowels are identical to the PM vowel, there are also a number of cases where the vowel lengths do not match, as can be observed from the following cognate sets. In 4.2.1.1 the PM vowel is long, the Huastec reflexes short (vowel length is not marked in the Chicomuceltec sources):

4.2.1.1 Huastec short vowel reflexes of PM long vowels

Chc	Vcz	Pot	PM	
	baʔim	*baʔim*	***b'a:h*	'gopher'
		yah-al	***ya:h*	'pain'
te	*teʔ*	*teʔ*	***t̂e:ʔ*	'tree'
wew	*wew*	*wew*	***ŋe:h*	'tail'
petpet	*pet*	*pet*	***pe:ts*	'turtle'
ič	*ič*	*its*	***i:k*	'chile'
ik	*ik'*	*ik'*	***i:q'*	'wind'
k'ih	*k'ih*	*k'ih*	***q'i:ŋ*	'party
si	*θiʔ*	*θiʔ*	***si:ʔ*	'firewood'
sini	*θiniy*	*θiniy*	***si:naʔŋ*	'scorpion'
is	*iθ*	*iθ*	***i:s*	'sweet potato'

4.2.1.2 Huastec long vowel reflexes of PM short vowels

Chc	Vcz	Pot	PM	
ičan	*ič̌a:n*	*itsa:n*	***ikan*	'relative'
way	*ba:y*	*ba:y*	***bay*	'brother-in-law'
patiš ačawal	*a:č*	*a:ts'*	***ak'*	'wet/to get wet'
čawa:l	*čaba:l*	*tsaba:l*	***kabal*	'ground'
may	*ma:y*	*ma:y*	***ma(ʔ)y*	'tobacco'
		ha:y	***xay* [K]	'how many'
ča	*č'a:h*	*ts'a:h*	***k'ah*	'vine'
čen	*č'e:n*	*ts'e:n*	***k'eʔn*	'hill/cave'
hol	*ho:l*	*ho:l*	***xol/xul*	'cave'
	u:t'	*u:t'*	***huḫt'*	'opossum'
hun i lahu '11'	*la:hu*	*la:huh*	***laxuŋ*	'10'

u:w	*u:w*	***huʔɳ*	'paper'

4.2.1.3 Phonological conditions provoking vowel-length change in Huastec

Given that the Chicomuceltec sources did not indicate vowel length, it is also difficult to ascertain whether or not vowel length change was a Huastecan phenomenon or one pertaining only to Huastec. I shall assume that it was a change which took place before the Huastecan split, with Chicomuceltec possibly diverging subsequently. It is difficult to determine what is provoking the change in vowel length in Huastec, given that there are not enough data for clear rules to be apparent. It must be borne in mind that vowel length in Proto-Mayan was reconstructed before adequate data on the Huastecan branch was available. With recourse to Huastec data, we may find that future reconstructions of Proto-Mayan vowel length differ somewhat to how they are currently presented.

It does seem however, that many of these cases are influenced by PM ***y*, ***h* or ***ɳ*.

a) It appears that the Huastecan vowel is shortened when it originally preceded ***ɳ* (if the PM vowel was short, then it remains short, e.g. ***laxuɳ* >*la:huh* 'ten'. There are no cases of the Huastecan vowel lengthening in this environment).

Chc	Vcz	Pot	PM	
k'ij	*k'ih*	*k'ih*	***q'i:ɳ*	'party

b) Where the Proto-Mayan glottal stop is retained in Huastecan, the vowel preceding it also shortens:

Chc	Vcz	Pot	PM	
te	*teʔ*	*teʔ*	***te:ʔ*	'tree'
si	*θiʔ*	*θiʔ*	**si:ʔ*	'firewood'

It should be noted however, that vowels are not always short where they precede glottal stops in Huastec (e.g.. Vcz *mu:ʔ tsi:š* 'divide' *na:ʔ k'"ah* 'there it is'). I presume however, that where an original Proto-Mayan glottal stop was retained in Huastecan, the vowel preceding it shortens and that cases of long vowels before glottal stops in Huastec are possibly due to later derivational forms (on account of the fact that in many cases there is both a base short-vowel form, and then a semantically related long-vowel form), or due to the glottal stop itself being an innovation in those cases and not actually derived from a PM glottal stop.

c) Where the Proto-Mayan glottal stop was elided in Huastecan, the vowel preceding it often lengthens:

Chc	Vcz	Pot	PM	
chen	*c'e:n*	*ts'e:n*	***k'eʔn*	'hill/cave'
may	*ma:y*	*ma:y*	***ma(ʔ)y*	'tobacco'
	u:w	*u:w*	***huʔη*	'paper'

d) Nevertheless there is one instance where it remains short, presumably because when a suffix was added to the root, the vowel lengthening did not occur:

Chc	Vcz	Pot	PM	
yašni	*yašniʔ*	*yašni*	***raʔš*	'green'

e) Where the Huastecan vowel originally preceded PM ***x* or *h*, the vowel was generally shortened, if the original PM vowel was long, or remained short if the original PM vowel was short. The vowel also remained or became short if the ***h* was elided (this is consistent with the example above of word-final PM ***η*, which became **h* in Proto-Huastecan word-finally):

Chc	Vcz	Pot	PM	
	baʔim	*baʔim*	***b'a:h*	'gopher'
		yah-al	***ya:h*	'pain'
wew	*wew*	*wew*	***ηe:h*	'tail'
		tuʔ	***tsuh*	'water gourd'
bih	*bih*	*bih*	***b'ih*	'name'

hilam		*hilim* (encino)	***xih*	'oak'
tih	*tubay*	*tubkayal*	***t'uhb'*	'saliva'
tsinte	*t'intse*	*t'inče*	***tz'ihn*	'sweet manioc'

f) There are two exceptions to the above however; the first where the long PM vowel was retained in Huastecan, the second where the short PM vowel was lengthened:

Chc	Vcz	Pot	PM	
wel	*be:l*	*be:l*	***b'e:h-el*	'road'
ča	*č'a:h*	*ts'a:h*	***k'ah*	'vine'

The retention of the long vowel in the first example is presumably due to the contraction of the root and the suffix in Huastecan to one syllable. The lengthening of the vowel in the second example is less readily explicable, given that in the rest of the examples involving PM ***h* following a short vowel the Huastecan vowel does not lengthen.

The remaining cases of vowel length difference between Proto-Mayan and Huastecan are problematic. In some instances vowel length in Huastecan may have changed in order to distinguish one word from another, where the forms would have otherwise been identical, perhaps as a result of borrowing, or where PM phonemes merged in Huastecan to produce identical forms which would have been dissimilar in the original Proto-Mayan. This may account for the lengthening of the final ***a* in Vcz *čaba:l,* Pot *tsaba:l* (< ***kabal*). Given that there also exists a word with the short final *a* in Huastec: *čabal* (Pot *tsabal*) 'nixtamal', it is possible that the initial phoneme in this Huastecan word may have derived from PM ***č* rather than ***k,* and that with the merging of ***k* and ***č* to **č* in Huastecan, this word became indistinguishable from the word for 'ground', producing a lengthening of the final vowel in the latter, in order to keep a distinction between the two forms.

Other cases of vowel lengthening or shortening in Huastecan may be the result of later semantic derivation in Huastec. Certain semantically related words in Huastec are distinguished by vowel length, for example:

Chc	Vcz	Pot	PM	
otol	*o:t'* 'leather'	*o:t'* 'leather'	***o:t'*	'skin'
	ot'(-lab) 'skin'	*ʔot'(-lab)* 'skin'		

It must also be borne in mind that vowel length in Proto-Mayan was reconstructed before adequate data on the Huastecan branch was available. With recourse to Huastec data, we may find that future reconstructions of PM vowel length differ somewhat to how they are currently presented.

4.2.2 Huastecan vowel shifts

There are also cases where the PM vowel is not the same in its Huastecan reflex. In some cases both Chicomuceltec and Huastec share the same vowel shift innovation (c), (f), (h), in others only Huastec displays the innovation (a) (d), (g), in yet others Chicomuceltec has the innovated vowel shift (e), and in a fourth set there is no PM form to determine which language was the innovator (b). In set (j) there is no Chicomuceltec form. Interestingly, in every case except **ma:p 'coyol palm', regardless of whether the original PM vowel is long or short, the innovated vowel in Huastecan is short.

Chc	Vcz	Pot	PM	
a) **o**	**u**	**u**	****o:**	
ow	*uh*	*uh*	***o:h*	'avocado'
sot	*θut'*	*θut'*	***so:ts'*	'bat'
kowak	*k'ubak*	*k'ubak*	*(**q'ab)*	'hand'
b) **u**	**o**	**o**		
čočun	*č'oč'on*	*ts'ots'on*		'dew'
tušuš		*tošoš* 'capstan/windlass'		'spindle'
c) **u**	**u**	**u**	****o:**	
tuhu	*t'uhub*	*t'uhub*	***to:n* or **to:ŋ*	'stone'
d) **e**	**a**	**a**	****e:**	
čenúk	*čanak*^{w}	*tsanak*^{w}	***ke:naq'*	'bean'

e) **e**	**a**	**a**	****a or ****a:**	
mep	*ma:p*	*ma:p*	***map*	'coyol palm'
en	*ahin*	*ahin*	***ahin*	'alligator'
et em	*at'em*	*at'em*	***a:ts'-a:m*	'salt'
f) **e**	**e**	**e**	****a: or a**	
veklék	*beklek*	*beclec*	***b'a:q*	'bone'
et em	*at'em*	*at'em*	***a:ts'-a:m*	'salt'
šekelte	*šek*	*šekel*	***ša:q*	'leaf'
čemenehič 'death'	*čemθa?* 'to kill'	*tsemenekits* 'it's already dead' [A]	***kam*	'to die'
g) **a**	**i**	**i**	****a**	
ičak	*ičik'*	*itsik'lek*	***iSk'aq* (claw) [KN]	'fingernail'
wašak te ew hilam	*wašik*	*wašik* *hilim*	***waqšaq* *(**xih)*	'8' 'oak'
h) **i**	**i**	**i**	****a**	
inik	*inik*	*inik*	***winaq*	'man', 'person'
i) **i**	**a**	**a**	****i**	
čik ew	*čak'ib* *čihow* adj, 'smelling like sweat'	*tsák'ib [A]*	***kiq/**kiq'* [KN]	'sweat'
j)	**u**	**u**	****i**	
	šučun	*šutsun*	***šikin*	'ear'

It can be observed from the series of cognate sets with PM forms above, that, with the exception of *tsanak'u* < ***ke:naq'* 'bean', and *šutsun* < ***šikin*, 'ear', all examples of vowel shifts from PM to Huastecan are in the direction of back > front vowels.

The vowel shifts that occur in these cases can be accounted for, at least in part, by two different vowel-substitution processes:

4.2.2.1 Vowel assimilation

As was illustrated in 2.4.3, some cases where the Huastec form has a suffix, there is a tendency in Huastec for vowel harmony to occur between the vowel of the suffix and that of the root. This process of vowel harmony can be identified in the following Huastecan forms that have different vowels from the related PM forms:

Chc	Vcz	Pot	PM	
čenúk	*čanak*$^{\eta w}$	*tsanak'*^{w}	***ke:naq'*	'bean'
weklek	*beklek*	*beklek*	***b'a:q*	'bone'
čemenehič	*čemθa?* (to kill)	*tsemenekits*	***kam*	'to die'
'death'		'it's already dead'		
		[A]		
	šučun	*šutsun*	***šikin*	'ear'
inik	*inik*	*inik*	***winaq*	'man'

4.2.2.2 Vowel-ablaut in derivatives

A second apparent phonological process may account for many of the other cases of the difference between certain vowels in PM and in Huastecan. McQuown (1984) has identified a vowel-ablaut feature in Huastec, whereby lower (back) vowels in root forms are sometimes replaced by higher (front) vowels in derivatives (cf. 2.4.2)

Presumably, in those Huastecan words where the reflexes of certain PM vowels display a shift from lower (back) to higher (front) vowels, we are observing cases where the derivative of the PM form has become the standard form in Huastecan, and the original base form, which would have had the vowel of the PM form, has been lost. In some cases it is still present, such as in the example of :

Chc	Vcz	Pot	PM	
ow	*uh*	*uh*	***o:h*	'avocado'

There is also a form *oh* 'fragrant avocado' (given above by McQuown) which has retained the original vowel of the Proto Mayan.

This Huastecan vowel-ablaut feature is presumably connected to the vowel harmony process mentioned above, in so far as the root-suffix assimilation has often occurred in derivatives that may have already undergone the process of ablaut. This accounts for the high proportion of cases where there is not only vowel harmony evident between root and suffix in Huastec but which also display a shift from PM low back vowels in the root to high front vowels in both the suffix and root. As mentioned above, only two cases of Huastecan vowel shifts are not in the direction of front – back. One of these is accountable for by suffix-root vowel harmony. In the case of *tsanak'u* < ***ke:naq'* 'bean', the first vowel is in harmony with the PM suffix. The case of Vcz *čak'ib* (Pot *tsák'ib*) from ***kiq/***kiq'* 'sweat' is less readily explicable. The Chicomuceltec vowel matches the PM vowel: *čik ew*. It is possible that the Huastec forms are not cognate with the PM form. There is an adjective in Vcz: *čihow* 'smelling like sweat', which matches the PM vowel.

The lack of consistency between the Chicomuceltec forms and the Huastec forms (where sometimes both display the innovative vowel shift, while at other times only one or the other does) suggests that these vowel shift phenomenon probably began during the Common Huastecan period, but continued after the split of the two languages.

	**i	**e	**o	**a	**i:	**e:	**u:	**o:	**a:
Chc	*i*			*i*		*e*		*u*	*e*
Hua	*a*			*i*		*a*		*u*	*e*
Chc				*a*				*o*	*e*
Hua				*i*				*u*	*a*
Chc				*e*					
Hua				*e*					

Figure 7. Vowel shifts in Huastecan

4.3 Summary

p t ʦ č k kʷ x	*i(:) u(:)*
t' ʦ' č' k' kʷ' ʔ	*e(:) o(:)*
b	*a(:)*
m n	
s š h	
l	
w y	

Figure 8. Proto-Huastecan phonemic inventory

4.3.1 Proto-Mayan to Proto-Huastecan

In sum, the phonological development from Proto-Mayan to Proto-Huastecan consisted of the following:

Several PM phonemes were retained unchanged, namely **p, **b, **č, **č', ʔ (lost in certain environments, e.g. before word-final consonants), **s, **š, **m, **n, **l, **y. A chain shift occurred where **k(') > č(') and then **q (')> *k('); resulting in the merging of **k(') and **č(') to *č('). Another chain shift occurred where **t(') first became *ṭ(') and then **ʦ (') and **ts(') merged to *t('). Conceivably **ts > t could have occurred after **t(') > *ṭ(') , or this shift could be broken into two stages, with **ts first becoming *ʦ, followed by participation in the shift from

**$\hat{t}$ (') to *t. There appears therefore to have been a 'fronting' feature in the development of Proto-Huastecan velar stops and of dental and palatalised stops and affricates (with the exception of **t(') > *$\hat{t}$('')). *k(')^{w} emerged as a result of the absorption of *o or *u into PH *k(') before a semi-vowel or laryngeal. **r merged with **y. **η, **w and **h underwent the most complex changes. **η appears to have shifted relatively early to *w, at least word initially and possibly word finally, though it may have shifted directly to *h word-finally with no intermediary *w in the word-final environment (the data are too limited to determine the precise phases of the shift from **η > *h word finally). **w (and *w already derived from **η) was retained unchanged except before rounded vowels where it was elided, and in certain other environments for which rules cannot be ascertained due to the limited data. If **η did not shift directly to *h word-finally, then (*)*w shifted to *h, with word final *h subsequently shifting to *y(?) following *a(?)_#. The Huastecan reflexes of word initial **h preceding rounded vowels are confusing. In Chicomuceltec it appears that h was retained; in Huastec h may have become b, or otherwise elided, though the phonological conditions influencing these changes cannot be determined. **h appears to have become *w (though this may not occurred at the Proto-Huastecan stage, but at a later stage in Huastec) in certain instances where h+V_r+y (or w) is adjoined by CV. Otherwise **h was retained unchanged in Proto-Huastecan or elided when it occurred word finally and adjoined by a suffix with an initial consonant. In some cases it also appears to have become a glottal stop, though it is not possible to tell whether this was a Proto-Huastecan phenomenon or one only occurring later in Huastec, as the Chicomuceltec sources seldom marked glottal stops. **x shifted to *h. The Proto-Mayan vowels were generally retained unchanged in Proto-Huastecan, though in certain cases also moved from back to front, particularly when they originally preceded PM **?, **η or **h, or varied in length from the original PM vowel length due to do vowel harmony between suffix and root, or semantic derivation.

4.3.2 Proto-Huastecan to Chicomuceltec and to Potosí and Veracruz Huastec

The phonological development from Proto-Huastecan to Chicomuceltec and to Huastec consisted of the following:

PH **p*, **t*, **t'*, **č*, **č'*, **k*, **k'*, **ʔ*, ***š*, **m*, **n*, **l*, **y*, **w*, and **h* were retained unchanged in both Chicomuceltec and Huastec. **b* was retained unchanged in Huastec and shifted to *w* in Chicomuceltec (i.e. Chicomuceltec merged **b* and **w*). **t̰* and **t̰'* shifted to *t* and *t'* in Chicomuceltec (i.e. Chicomuceltec merged **t̰(')* and **t(')*). **s* was retained in Chicomuceltec, but shifted to *θ* in Huastec. With the independent development of the Huastec dialects, Veracruz shifted **t̰(')* to *ts*; Potosí shifted **t̰(')* to *č(')* and *č(')* to *ts(')*.

4.3.3 Inventory of sound changes (consonants)

***p*	> **p*	> Chc *p* > Hua *p*	
***b*	> **b*	> Chc *w* > Hua *b*	
***t̰*	> **t*	> Chc *t* > Hua *t*	
***t̰'*	> **t'*	> Chc *t'* > Hua *t'*	
***ts*	> **t*	> Chc *t* > Hua *t*	
***ts'*	> **t'*	> Chc *t'* > Hua *t'*	
***t*	> **t̰*	> Chc *t* > Hua *t̰*	> Vcz *ts*; Pot *č*
***t'*	> **t̰'*	> Chc *t'* > Hua *t̰'*	> Vcz *ts'*; Pot *č'*
***č*	> **č*	> Chc *č* > Hua *č*	> Pot *ts*
***č'*	> **č'*	> Chc *č'* > Hua *č'*	> Pot *ts'*
***k*	> **č*	> Chc *č*	

		> Hua *č*	> Pot *ts*
***k'*	> **č'*	> Chc *č'*	
		> Hua *č'*	> Pot *ts'*
***q*	> **k*	> Chc *k*	
		> Hua *k*	
***q'*	> **k'*	> Chc *k'*	
		> Hua *k'*	
***q(')* + *o/u* + *w/y/h/ʔ*	> **k(')*^{w}	> Chc *k(')*^{w}	
		> Hua *k(')*^{w}	
***ʔ* >	> **ʔ* /*V*__#	(> Chc *ʔ*)[18]	
		> Hua *ʔ*	
	> **ø* /__C#	(> Chc *ø*)	
		> Hua *ø*	
	> **y* /*ŋ*__#	(> Chc *y*)	
		> Hua *y*	
***s*	> **s*	> Chc *s*	
		> Hua *θ*	
***š*	> **š*	> Chc *š*	
		> Hua *š*	
***m*	> **m*	> Chc *m*	
		> Hua *m*	
***n*	> **n*	> Chc *n*	
		> Hua *n*	
***l*	> **l*	> Chc *l*	
		> Hua *l*	
***y*	> **y*	> Chc *y*	
		> Hua *y*	

[18] Glottal stops are not indicated in the Chicomuceltec sources, so it is uncertain what the Chicomuceltec reflexes of the PH glottal stop would have been.

***y*	> **y*	> Chc *y* > Hua *y*
***η*	(early > **w* /#__ > **h* /__# or > *w* /__# > *h* /__#)	
***w*	> **ø* /#__V_r	> Chc *ø*[19] > Hua *ø*
	> **ø* /#__*a, i*[20]	> Chc *ø* > Hua *ø*
***h*	> **h*	> Chc *h* > Hua *h*
		> Chc *h* (or possibly *w*) /#__*o,u*[21] > Hua *b* or *ø* /#__*o,u*[22]
	> **y*(?) /*a*(?)__#	> Chc *y* > Hua *y*
	> **w* /__V_r*y*/*w* + *CV*	> Chc *w*
> Hua *w*		
***x*	> **h*	> Chc *h* > Hua *h*

[19] It is not clear whether ***w* also became *ø* in Chc preceding rounded vowel. The bulk of evidence suggests that it did, but there are certain contradictions in the sources (cf. 3.1.2 and 4.1.25).

[20] **w > **ø*/#__*a,i* in most cases, though there are instances of initial *w* retained. The paucity of the data prevents the precise phonological conditions for the shifts from being apparent (cf. 4.1.25).

[21] It is not clear whether **h* became *w* in Chc preceding rounded vowels; the data are contradictory (cf. 4.1.26).

[22] The phonological conditions determining which shift takes place in which environment cannot be determined from the limited data (cf. 4.1.26).

Chapter Five

Huastecan Linguistic Prehistory

5.1 Subgrouping

5.1.1 Classifications of the Mayan language family

In most current views the Huastecan subgroup is held to be the first to have branched off from the Mayan language family and therefore incapable of having a closer affinity with other members of the family. In Kaufman's (1976) classification of Mayan languages, Huastecan forms one of four branches of the family, (along with Yucatecan, Western Mayan and Eastern Mayan). Campbell and Kaufman (1985) have Huastecan as one of five branches (along with Yucatecan, Greater Tzeltalan, Greater Q'anjobalan and Eastern Mayan). Campbell's (1997) classification maintains the unaffiliated position of Huastec, classifying it as one of two major branches of the family (the other being Yucatecan-Core Mayan). Robertson (1992) differs from other classifications in placing Huastecan in the Western Mayan branch (along with Yucatecan and Greater Tzeltalan). Robertson (1993) suggests a special relation between Huastecan and Tzeltalan. The classification of the Mayan language family thus remains unresolved in its higher level branchings, though most see Huastecan as the first subgroup to have branched off from the rest of the family.

Figure 9 (taken from Campbell 1998) on the following page presents the Mayan family tree according to the five commonly accepted subgroupings (Huastecan, Yucatecan, Cholan-Tzeltalan, Greater Q'anjobalan and Eastern Mayan).

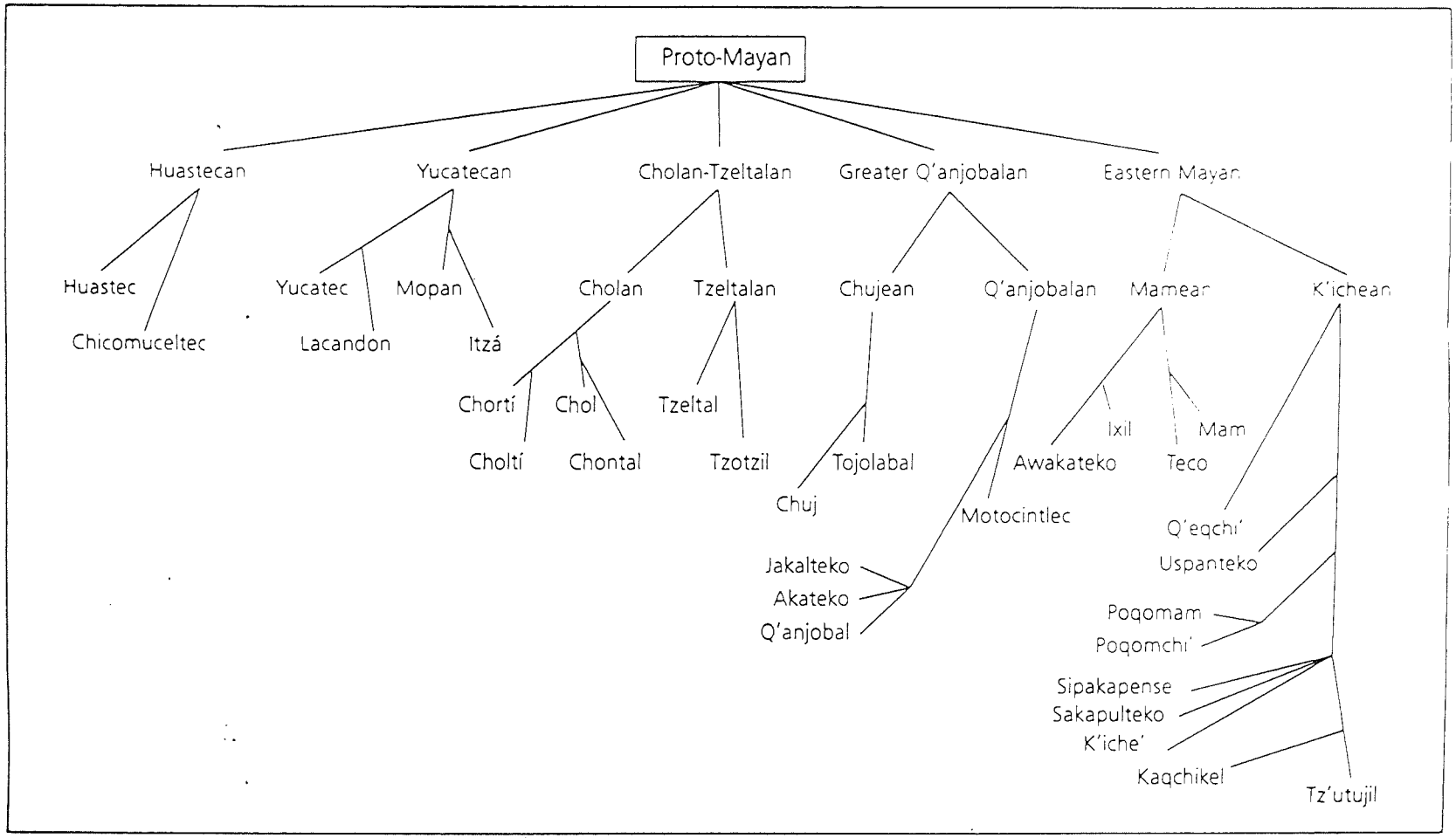

Figure 9. Mayan subgrouping
(from Campbell 1998:171)

5.1.2 The methodology of subgrouping

In establishing subgroups a distinction must be made between linguistic similarities which are due to shared retention, and similarities due to shared innovation. Similarities owed to shared retention do not aid in ascertaining subgroups (Crowley1992:167). As Campbell notes, the fact that Huastec, Mam and Mochó all have contrasting long and short vowels is not evidence that these have a peculiar connection after the break-up of Proto-Mayan (1977:65). To the contrary, it means only that these three languages retain a feature that was possessed by the proto language. On the other hand, common features between languages, which can be shown to be the result of innovative divergence from the Proto-language can provide important information regarding the establishment of language family subgroups.

Certain phenomena can influence the interpretation of shared innovations. Areal phenomena (diffusion of linguistic features across genetic boundaries) and wave phenomena (diffusion within a family across subgroup boundaries) can lead to false assumptions regarding subgrouping. It is important to distinguish between innovations that are shared as a result of diffusion (these provide no information on sub-grouping), and those which are shared genetically. Similarly, implicational universals in the direction of sound change can have an effect on what might be interpreted as a shared innovation. Many changes are so common that they may be experienced independently by various branches of a language family, and these do not inform an analysis of subgrouping. For example, the loss of contrastive vowel length is so common that it may happen in various branches of a family independently of one another (Campbell 1977:65).

5.1.3 Early theories relating to the classification of Huastecan

5.1.3.1 Charency

Hyacinth de Charency wrote the first major article dealing with sound correspondences in Mayan, and produced the first general classification of the Mayan language family. In his initial classification of 1870 he branched Huastec with "Tzental" [Tzeltal]. A revised classification in

1883 placed Huastec separate from the rest of the family, but he noted, on the basis of certain phonetic similarities, that Huastec was more closely related to Yucatec than to any other group. A further revised classification of 1890 split the family into an eastern and a western branch, with Huastec located in the Western group, sub-branched with Yucatec[23].

5.1.3.2 Berendt

Carl H. Berendt's work on Mayan language family was influential on later investigators in the field, both in terms of his classification of the family, and in terms of his extensive collection of accurate data on several Mayan languages. In his classification (1876), he placed Huastec in a separate branch of the Mayan family tree, though, as Charency had done in 1883, he noted,:

> 'My own investigations have convinced me that, of the different languages of this family...they [Huastecan] are nearest related to the Tzental [Tzeltal](1876:10)

5.1.3.3 Stoll

Otto Stoll's genetic classification of Mayan (1884), more rigorous than any previous study, was based on lexical comparison, and in accord with the neogrammarian method. He classified Huastec as belonging to a separate branch from the rest of the family, and as the first language branch to break away from the proto language. His work became the basis for many subsequent genetic classifications of the family.

5.1.3.4 Gatschet

In an until recently relatively unknown article (c. 1895) Albert S. Gatschet based his classification of Mayan languages on the materials of Stoll and Berendt. His classification differs little from that of Stoll's, though he emphasises the view that Huastec is 'the most archaic of the Maya dialects'

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[23] Details of Charency's work on Mayan were taken from Campbell (1977:77-79)

(in Campbell 1978:79) , even noting: 'it is an open question whether or not the branch of the family called Huastec... is the ancient stem of all the Maya-speaking natives' (in Campbell 1977:80).

5.1.3.5 Sapper

Karl Sapper, as the (re-)discoverer of Chicomuceltec, was the first to concern himself with the language, and to recognise the close relationship between it and Huastec. Following his article "das Nördliche Mittelamerika" (1897), which contained Chicomuceltec word-lists, and a sketch of some of the sound correspondences that he observed between his Chicomuceltec forms and Huastec vocabulary (taken from Stoll, who used Berendt's word-lists), all subsequent classifications of the Mayan language family incorporated Chicomuceltec into the Huastecan sub-group.

5.1.3.6 Termer

Fieldwork on Chicomuceltec undertaken by Franz Termer in 1926 helped to confirm its relationship with Huastec. Termer reached the conclusion that there were also "bemerkenswerte Beziehungen" [notable connections] between Chicomuceltec and Jacaltec, Chuj (Solomeño), and Mam. His evidence, was however, rather meagre and consisted of only a few possible cognates.

5.1.3.7 Kroeber

Alfred Kroeber, basing his classification on the vocabularies of Stoll, Berendt and Sapper, was the first to divide the language family into 'lowland' and 'highland' subgroups. In 1939 he united Chicomuceltec and Huastec into a single group on the basis of Sapper's data (Termer's work was unknown to him at the time). Later, in 1944, having learnt of Termer's contribution, he provided more definitive evidence for the close relationship of Chicomuceltec and Huastec, publishing a list of cognates shared by both, but not by other Mayan languages, and cognates shared by many Mayan languages, but especially similar in Chicomuceltec and Huastec. In doing so he confirmed Sapper's initial observations regarding the special relationship between the two languages. In

Kroeber's view Huastec and Chicomuceltec were more similar to Chontal than to any other Mayan language. He did not regard the relationship that Termer saw between Chicomuceltec and its neighbouring languages (Jacaltec, Chuj, Mam) as particularly likely, ascribing the lexical similarities to secondary influences rather than to a common genetic history (1944:159).

5.1.3.8 Halpern

Halpern's classification (1942) was the first to be based on reconstructed PM phonology. He used shared innovations and took into consideration the possibility of wave phenomena being the cause of certain similarities in his data, but his classification was not accurate in a number of respects, given that his reconstructions were flawed in part (for example, he grouped Yucatec with the Guatemalan languages on the basis of the mistaken belief that the former also preserved a distinction between *k* and *q*). He classified Huastec as separate from the rest of the family, though noted certain phonological similarities with the Tzental group:

> 'Although the Huastec sound shifts seem to parallel the Tzental-group shifts, there are certain special developments in Huastec which make it advisable to keep Huastec separated from the others until more is known about all of them' [in Campbell 1977: 83]

He never indicates in his article what these particular developments in Huastec were.

5.1.3.9 McQuown

McQuown's (1955) classification was based on his own reconstruction of Proto-Mayan, which drew on correspondences between Mam and Huastec, with additional forms taken from other languages. His classification was partly based on shared retentions and on an 'impressionistic sampling the lexical material in the vocabularies that served as a basis for the working out of the phonology' (1956:194). As Campbell notes, his classification must therefore be viewed with caution, as it does not conform to what are now regarded as the standard methodological practices for subgrouping outlined earlier (Campbell 1977:87). Like Halpern, McQuown groups Huastecan in a separate branch from the rest of the family.

5.1.4 Recent Theories relating to the classification of Huastecan

5.1.4.1 Kaufman

Kaufman posits that Huastecan was the first to split off from proto Mayan, around 2200 BC, and that accordingly the language has "no known special relations with any other group of the Mayan family". The two phonological innovations which show up in other Mayan languages (**r > y, and **q > k) he considers to be independent changes (1976:106). Kaufman has consistently kept Huastecan separate from the rest of the Mayan language family in his initial, and then various revised classifications (1964, 1969, 1972, 1976). In his 1972 classification he divides the family into higher-order eastern and western branches, although he keeps Huastecan separate from both of these divisions. He also supplies dates for the branching of the various languages, giving a figure of 900 years for the time depth of the split of Huastec and Chicomuceltec.

5.1.4.2 Fox

Fox (1978) differs from Kaufman, and aligns himself with various earlier researchers on the subject (e.g. Hyacinth, Berendt, Halpern) in positing a closer connection between Huastecan and the Tzeltalan and Cholan groups, basing his view on what he sees as common innovations between these groups in the development from PM velar stops. However the changes undergone by PM **k in Western Mayan languages and in Huastec are not generally held to be common innovations, as the precise environments in which the sound shifts took place differ in each case (Campbell 1985:188). Fox's classification moreover, is based solely on his interpretation of Proto-Mayan velar innovations, and on no other phonological developments, so must be considered with caution.

5.1.4.3 Campbell

Campbell also once held the view that Huastecan had a special affinity with the Cholan-Tzotzilan group. Contributing to the belief was the fact that Huastecan shares almost all the phonological innovations which characterise Cholan-Tzotzilan as a subgroup (Campbell 1977:100).

$**k > č$
$**t > t$
$**q > k$
$**r > y$

The only non-shared innovation is the Cholan-Tzotzilan change of $**\eta$ to n. (As we have seen, Huastecan changed $**\eta$ to w or ø word initially, and to h word-finally, cf. 4.1.24).

Secondly it appeared that the two groups underwent a common innovation in the structure of plural pronouns. Several Western Mayan languages, especially those in contact with Cholan, have plural pronouns composed of singulars plus a plural affix. Proto-Mayan and most Eastern Mayan languages have independent plural pronoun affixes. The Huastec dialects known at the time have the structure of the Cholan group. These two sets of similarities, the series of shared sound changes and the common plural pronoun structure, collectively seemed to suggest a special genetic affiliation between the two groups.

More recently however, in light of Kaufman's recent discovery of a dialect of Huastec (Otontepec) which preserves the distinct affixes for plural pronouns inherited from PM, the classification of Huastecan with Cholan-Tzotzilan languages seems less plausible. Campbell (1985:188) now interprets the common pronouns of the Huastec dialects as parallel changes independent of the Cholan innovations.

The other similarities in sound shifts are also less convincing as evidence of a common sub-group than they might at first appear. The shift from $**q > k$ could have taken place in various branches of the family independently, as this sound change is a very commonly occurring change. As noted

above, the change from **k > č takes place under diverse conditions in different contexts in Western Mayan languages, so it is not the same change in each of these branches. The shift from **r > y (which took place in Huastecan, Yucatec, Cholan-Tzeltalan and the majority of the languages in the Q'anjobalan-Chuj groups) is, however, less readily explicable. Given that r is extremely rare in the non-Mayan neighbours of all these languages (Campbell, personal communication), it is possible that there may be some areal tendency against r . It should also be noted that the change from $r > y$ is a common sound change generally, and has occurred in various language families (e.g. Burmese, Northern Iroquoian).

It may be that this sound change shared by various Mayan subgroups is the result of diffusion and suggests a period of contact between Huastecan and one or several of these groups. In light of the fact that the grammar and vocabulary of Huastecan differ markedly from all other branches of the Mayan family, it seems safe to assume on the basis of current evidence that Huastecan must have been separated from the rest of the family at a substantial time-depth, and what may appear to be common innovations are more likely to be the result of independent but parallel developments in the various sub-groups, or owe their existence to diffusion.

5.2 Chicomuceltec and Huastec Diversification

The geographical separation of Chicomuceltec and Huastec remains an intriguing mystery for Mayan linguistics. Much speculation has been made as to how Huastec came to be so far removed from its sister language, and what course the migration of Huastecan speakers must have taken, from the point at which the language broke off from Proto Mayan some four thousand years ago, to the eventual settlement of the two sister languages in their respective locations in the Huaxteca, and in Chiapas.

5.2.1 Early speculations

The puzzle of the location of Huastec is commented on in the early literature pertaining to the languages, often in connection with questions related to the whereabouts of the original homeland

of Proto-Mayan as a whole. Prior to the (re)-discovery of Chicomuceltec, Stoll observed (1884/1958:97)[24]:

> "Es evidente que el idioma del antiguo Huextlan fue una rama lingüística separada ya en tiempos muy remotos del grupo de los demás idiomas mayances. Hoy día no existen datos suficientes que nos permitan conjeturar si esta separación de los huastecas, grande también geograficamente, de las demás naciones mayances, se efectuó por haber emigrado hacia el norte una parte del tronco racial original, aislándose en regiones de habla distinta a ellas, desarrollándose independientemente allí, o bien, si es más apropriado considerar a los huastecas como una tribu mayance que permaneció en la región septentional cuando las demás tribas emigraban hacia el mediodía en busca de un país nuevo donde establecerse"
>
> [It is evident that the language of the antique Huextlan was a linguistic branch already separated in very remote times from the rest of the group of Mayan languages. Today the data are not sufficient to allow us to surmise whether this separation of the Huastecans from the rest of the Mayan peoples, which, geographically, was also extensive, came about through a part of the original family stock having migrated northwards, completely isolating themselves from the other Mayan tribes and settling in regions where different languages were spoken, developing there independently, or whether it is more appropriate to consider the Huastecan as a Mayan tribe who remained in the north while rest of the tribes migrated south in search of a new homeland in which to establish themselves] [My translation].

With Sapper's discovery of Chicomuceltec and his recognition of the language's close relation to Huastec the issue of the distance between the language and the rest of the Mayan family was complicated even further. In Sapper's view:

> "Es scheint mir viel wahrscheinlicher, dass im Hochland von Chiapas-Guatemala die Huasteken neben den eigentlichen Mayavölkern ihre Wohnsitzte gehabt hatten, und dass später aus irgend welchen Gründen ein grosser Teil, vielleicht die Hauptmasse, des Volkes nach dem Tiefland am Golf von Mexiko gewandert wäre...ein grösserer oder kleinerer Teil der Huasteken wäre dann zurückgeblieben und durch andere Stämme allmählich nach ihren jetzigen abgelegenen Wohnplätze gedrängt worden, wo ihre Sprache sich selbständig weiter bilden konnte".

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[24] Taken from the Spanish translation (Antonio Goubaud Carrera 1958) of the 1884 German original.

> [It seems to me much more probable that the Huastecans had had their home alongside the actual Mayan peoples in the Chiapan-Guatemalan highlands, and that later, for some reason, a large division, perhaps the main body of the people would have migrated to the Lowland in the Gulf of Mexico...a greater or smaller division of the Huastecans would then have remained behind, and would have been gradually been pushed towards their current remote location, where their language could continue to develop independently] [My translation].

Kroeber (1944:160) speculated that Chicomuceltec may have been left behind when Huastec speakers migrated north-west from the main Maya territory, or, conversely, that both may have broken off from the rest of the Mayan group, with Huastec continuing to travel north, and Chicomuceltec returning after a period.

Zimmerman addressed the problem in his comprehensive article on the two languages, noting that by the time that he was writing on the subject (1955) many theoretical explanations had been proposed :

> "...daß die Huaxteken bei einer allgemeinen Nord-Süd-Wanderung im Norden verblieben, während alle übrigen Mayastämme weiter südlich wanderten; daß der Süden die Urheimat der Mayavölker ist, wobei die Huaxteken als einzige nach Norden wanderten; oder daß schließlich einmal eine zusammenhängende Maya-Bevölkerung längs der mexikanischen Golfküste ansässig gewesen war, deren räumlicher Zusammenhang durch sich dazwischendrängende anderssprachige Völker, insbesondere Totonaken und Mexikaner, aufgerissen wurde – die heute wohl am meisten bevorzugte Interpretation (1955:59)

> [...that during a general North-South migration the Huastecans remained in the north, while all the other Mayan tribes migrated further south; that the south is the original homeland of the Mayan peoples and the Huastecan were the only ones to migrate northwards; finally, that at one time there had been a continuous Mayan population situated along the Mexican Gulf Coast, whose continuity was broken by intrusive peoples speaking other languages, in particular the Totonacs and Mexicans – the interpretation most accepted today] [My translation].

5.2.2 Recent theories

More recent analyses of the issue have attempted to resolve the matter on the basis of linguistic and archaeological evidence. Kaufman (1976:106) speculates that Proto-Mayan was probably

spoken in the Cuchumatán highlands of Guatemala, near Soloma, Huehuetenango, until c. 2200 BC. He proposes that Huastecan split off from this Proto-Mayan homeland around 2200 BC and migrated north and westwards towards the Huaxteca, probably before 1500 BC Huastec in his view has remained in its location in the north-east for more than 1000 years, with Chicomuceltec splitting off from Huastec in this area around AD 1100[25], and subsequently re-entering the Mayan region, in south-east Chiapas as an 'intrusive group'. In light of the fact that in the Totonac area there is no evidence of Totonac artefacts dated before c. AD 1300, he postulates that Chicomuceltec may have been spoken somewhere in what is the present Totonacan area, and that its departure from this area was a result of expansion or movement of the Totonacans (1980:110). He states 'there is no question that Chicomuceltec did migrate from the Huastec area – it shares many phonological, lexical and grammatical peculiarities uniquely with Huastec' (1976:111). The fact that Chicomuceltec and Huastec share various Mixe-Zoquean (MZ) and Zapotecan loans also suggests for Kaufman that they were present as one language in the Huastec area (1980). He speculates that Huastecans may have been in central Veracruz, as well as further north during the Late Pre-Classic, given the fact that there was Zapotecan contact during this time with lowland Mayans and also influence on central Veracruz (1976).

The following are examples of MZ, Mixean, Zapotecan and Totonac contact with Huastec or Huastecan:

(1) Mixe-Zoque

Chc	Hua (Pot)	Mixe-Zoque	Proto-MZ[26]	
<tim>	*tima?*	*tsim (Mixe)*	**tsima*	'gourd'
	kakaw	*kakawa (Zoque)*	**kakawa*	'cacao'

[25] Based on glottochronological calculations (Kaufman1976:106)

[26] Mayan languages have borrowed much from Miche-Zoquean (MZ) under the influence of Olmec and Ziapan cultures (now understood to be MZ speaking). Kaufman (1976) notes that most Meso-American languages from Oaxaca to Honduras (Nahua and Huastec too) have loans from Mixe-Zoque languages. These loans have to do with typical Meso-America cultural features such as cultigens, kinships and symbols. The Olmecs probably had these first, and they would have been subsequently diffused throughout the region. The Olmecs are identified with Mixe-Zoque languages because they were situated inside the territory of these languages.

	okow	*ʔakaɳ* (Sierra Popoluca)	**ʔa(:)law* (PMZ)	'wasp'
<*coy*>	*koy*	*ko:y (Mixe)*	**koya*	'rabbit'
	tsiwʔ 'chayote'	*tsiʔiw (Mixe)*	**ciʔwa*	'squash'
	ok 'fox'	*ʔok*	*ʔuka	'dog'

(2) Zapotecan

Chc	Hua (Pot)	Isthmus Zap	
<*vitím*>	*bičim*	*bĭ̌ì̌nă*	'deer'
<*tat*>	*ta:t*	*da*	'woven mat'
	pik'oʔ	*biʔkùʔ*	'dog'

(3) Totonac

Chc	Hua (Pot)	Totonac	
	kalam 'squash'	*aʔlaʔm*	'a wild vine'
<*ok*>	*ok*	*aʔk*	'head'
	ts'ika:č 'girl'	*tsiʔkaʔ(n)*	'lady, daughter'
	ma:š 'if'	*ma:š*	'perhaps'

Campbell however remains unconvinced that Chicomuceltec split off from Huastec in the present Huastec area, questioning the plausibility of Chicomuceltec returning to the Mayan area after having been so separated from it (Campbell 1988:209). He does not hold Kaufman's view that Huastecan loans from MZ argue for a specific area, given that forms such as *ko:y* 'rabbit', *okow* 'wasp' and *tsiwʔ* 'chayote' could have been borrowed in almost any part of the entire region spanning the modern Huastec and Chicomuceltec areas. Given that other Mayan languages also share MZ loanwords, the fact that Huastec and Chicomuceltec have such loans does not anchor the borrowing of them in these languages to the present Huastec area. *ko:y* 'rabbit', for example, is borrowed into other Mesoamerican languages.

Similarly, the Zapotecan loan words do not provide specific evidence for Chicomuceltec having migrated from Huastec territory. Campbell notes that these could have been borrowed in the Isthmus area or even in Chiapas, which would leave open the possibility of Chicomuceltec never having been anywhere except in its modern location. He states:

> 'If one were to push the Zapotecan loan-word argument too far as evidence for Huastecan migrations, then one would be hard put to explain why Yucatecan (not assumed to have migrated in similar fashion or to have been in direct contact with Zapotecan) has some Zapotecan loan words, such as *pe:k* dog (also in Huastec but not Chicomuceltec), and *manik* (a day name meaning 'deer', compare Isthmus Zapotec *mani?*)' (Campbell 1988:210)

He also points out that the archaeology of the Huaxteca is not well enough known to be able to attest to Huastec's presence in the region for more than 1000 years (since before the assumed Huastecan break-up). With regard to Kaufman's hypothesis that Chicomuceltec was displaced from the modern Totonac area, Campbell believes that there is no reason why Totonacan could not have been in its current location before AD 1300. Even if the archaeology were known with certainty, he notes that it is still possible new groups could have assimilated themselves to existing local cultures, producing a continuous sequence of cultural developments in the archaeological record (Campbell 1988:209).

The paucity of archaeological evidence to date has meant that no theory of Huastecan migration has yet been able to be proven definitively through this line of investigation. Campbell notes however, that in certain respects the archaeological record does appear to favour Kaufman's proposal somewhat. If Huastec did migrate north only after 1000 AD, i.e. after the split of Huastec and Chicomuceltec, then we have to account for why the archaeology of the region does not show any corroborative evidence of intrusive groups (Campbell 1988:212). Secondly, the archaeology of Chicomuceltec is very limited; it appears Chicomuceltec speakers have only ever occupied a small area, which might suggest a shorter time frame for their settlement there. Moreover, while still very insubstantial, there do appear to be a few archaeological characteristics which link the Huaxteca with the Chicomuceltec area: round buildings, triangular point types, axes, yokes and large bells (Campbell 1988:212).

While archaeological evidence may be tenuously in favour of Huastec having been in situ for more than 1000 years, linguistic evidence does not by and large corroborate Kaufman's hypothesis. One argument Campbell (1988:211) has put forward against Chicomuceltec having been in the Huastec region comes from an absence of vocabulary in this language which, as Kaufman (1980) demonstrates, Huastec shares with Coahuilteco, an extinct language from just north of the Huastec area. While this could be due to the limited amount of Chicomuceltec data, it does suggest that Chicomuceltec was never in the Huastec area. Campbell does note the possibility however, that Chicomuceltec speakers may have returned to the Mayan region before Huastec and Coahuilteco began to borrow from one another.

The first three forms below are Mayan. The remainder are not demonstrably Mayan.

Hua (Pot)		Coahuiltec/Comecrudo	
momob	'grandchild	*mamōu*	'male first cousin'
tsem-/tsam-	'die'	*tzam*	'die (Com kamau 'kill')
ha:y	'how many'	*xat*	'how many'
k'ale-e, kal-e	'go, leave'	*kāl/kal*	'to go'
k^{w}ito:l	'boy'	*kuitāl*	'man's elder sister'
ts'u:ts'	'younger kinsman'	*tzūtzan*	'woman's younger sister'
ata:tal	'man's brother' (Vcz 'fellow, brother-in-law)	*t'atāl*	'woman's elder brother'

As counter-point to Kaufman's view of Huastec being in situ in its present location for more than 1000 years is the fact that there are certain connections between Huastec and Western Mayan languages which Campbell argues may suggest that Huastecan had extensive contact with them, and also contact in more recent times. As was mentioned above, Campbell once proposed, on the basis of certain shared sound changes and certain pronominal innovations, that WM and Huastec may have even belonged to the same genetic sub-group, though recent evidence suggests that this no longer be the case and he now no longer holds this view. It nevertheless appears that there has at least been extensive contact between the two language groups, as evidenced in loan-words. The

Huastec word *tak'in* 'silver, money, precious metal', for example, is mostly likely a loan in Huastec taken from some language of the western branch of Mayan, (Chol-Tzeltalan or Yucatecan), as the etymology of the word is analysable as: PM **t̰a?* 'excrement, and **q'iŋ* (sun, day), but in Huastec does not follow the expected reflex. Hua has *ta?* 'excrement' regularly reflecting PM **t̰a?*, but *k'ih* 'day' as the regular reflex of PM **q'i:ŋ*. As Campbell (1988:211) points out, the appearance of metal is fairly late in Mesoamerica, which would suggest relatively recent contact between Huastec and other Mayan languages, and thus speaks against Huastec being in its present location for a long period of time. The archaeological record indicates that metal artefacts do not begin to appear in the region in abundance until the Post Classic period, which began around 900 A.D (Pendergast 1962). Given that both Chicomuceltec and Huastec share the borrowing, the fact of this particular shared loan-word also emphasises a relatively recent split for the two languages.

In sum, much remains to be established with regard to our knowledge of Huastecan linguistic prehistory. In terms of Mayan subgrouping, it seems probable that Huastecan separated from the rest of the family at a substantial time-depth and therefore does not have a particular relationship to any other branch of Mayan. The grammar and vocabulary of Huastecan differ markedly from all other branches of the Mayan family, and what may appear to be common innovations probably owe to independent but parallel developments in the various sub-groups, or to diffusion. Continued comparative investigations across Mayan languages will, I hope, shed more light on the issue.

Regarding the path and timing of Huastecan diversification and migration, not much can be ascertained from the current data at hand. Current knowledge of the archaeology of the region, and of extra-Mayan linguistic contact does not yet contribute much towards our understanding of the puzzle. The data on Chicomuceltec is unlikely to be supplemented, though the archaeological record and further study of the Huastec dialects and of both non-Mayan and Western Mayan languages may reveal more. At this stage, there does not appear to be any definitive evidence that Chicomuceltec was ever in the Huastec area. Certain factors, such as various loanwords from Western Mayan languages and (possibly) diffused phonological phenomena do suggest that there was contact between Huastecan and Western Mayan languages. It is less certain when this contact

would have taken place, but the loan-word *takin* suggests a reasonably late date, which in turn argues against Huastec having been in its modern location since before its divergence from Chicomuceltec.

Chapter Six

Conclusion

Huastecan has always been an intriguing, problematic and under-represented area of Mayan linguistics. Its unique position in the Mayan language family tree invests it with particular significance for Mayan historical linguistics. As the first branch to have broken off from the rest the Mayan family, and the language group most divergent in terms of both grammar and vocabulary, thorough research on Huastecan philology and the various Huastec dialects has the potential to have a continued impact on how we conceive of the nature of Proto-Mayan and its evolution. Already philological studies involving Huastecan have led to a re-thinking of certain aspects of Proto-Mayan phonology, in particular Kaufman's discovery that labiovelars were a Huastecan phenomenon and not, as had until then been thought, a feature of the Proto-Mayan phonemic inventory. The discovery of the Huastec dialect of Otontepec and its preservation of the distinct affixes for plural pronouns inherited from Proto-Mayan has helped to revise notions of the possibility of a particular relationship between Huastec and Western Mayan languages, which were based in part on what had until then appeared to be a shared innovation in the structure of plural pronouns between the two groups.

The problematic aspects of the philological interpretation of the Chicomuceltec material and very limited amount of data available on the language has, however, perhaps deterred a more concerted exploration of Huastecan historical linguistics. There has not, until now, been any serious attempt at a reconstruction of Proto-Huastecan. Huastecan, therefore, with its special status in the family, has not had the impact on Proto-Mayan studies that it deserves. It is my hope that this thesis will redress this gap in Mayan historical linguistics and provide important resources for the continued study of Proto-Mayan and the role of Huastecan in it.

In the course of this study the phonological correspondences of Huastec and Chicomuceltec have been explored through the comparison of cognate sets and Proto-Mayan etyma in order to

ascertain the phonemic inventory of Proto-Huastecan. It has been demonstrated that Huastec and Chicomuceltec are phonemically relatively similar, with the main divergences lying in Chicomuceltec having fewer phonemic contrasts than Huastec, possessing no *b* or *ts*. Generally, Chicomuceltec and Huastec phonemes have been shown to correspond identically to each other, with the exception of Chicomuceltec *s* which corresponds to Huastec *θ*, and the voiceless dental stops and dental and palato-alveolar affricates, where the two main dialect of Huastec have themselves diverged, to produce the following two correspondence sets Chc *t(')* : Vcz *č(')* : Pot *ts(')* and Chc *t(')* : Vcz *ts(')* : Pot *č(')*.

The philological analysis of the Chicomuceltec data has pinpointed the various instances where the orthographies of Sapper and Termer are inconsistent or misleading and has for the most part resolved these. Cases of <*b*> have been shown to generally be mishearings of *p*, presumably on account of the *p* being unaspirated and therefore confused with its voiced counterpart. Other instances of *b* appear to be mishearings of *w*, suggesting the possibility that Chicomuceltec *w* had a fricative quality. This seems likely in light of Huastec *b* allophonics in the various dialects, where *b* is realised as *[β]* between two vowels or a vowel and a consonant in the Cen, Pot and Oto dialects (Kaufman 1985:475). Where <*tz*> occurs in the Chicomuceltec sources it has been shown to be frequently a case of *č* misheard, though it is possible that *č* itself was somewhat fronted, and therefore more easily mistaken at times for *ts*. It is debatable whether Chicomuceltec had labiovelars, but the nature of the Chicomuceltec transcriptions corresponding to Huastec labiovelars suggests that they did occur. Significantly, the process of labialisation of velars, which Kaufman (1980) has shown to have taken place in Huastec as a result of deletion of *o* or *u* between *k* (or *k'*) and either *w*, *y*, *h* or *ʔ* appears to have continued to have operated in Chicomuceltec after its split from Huastec, when **b* merged with *w*.

Unresolved problems manifest in the Chicomuceltec sources have primarily to do with glottalisation and vowel length. While at rare times glottalised consonants and the glottal stop do seem to be represented in the sources, their appearance is sporadic and occasionally correspond to a Huastec plain consonant. It therefore cannot be affirmed with any confidence whether or not Chicomuceltec did in fact retain the glottalised consonants of Proto-Huastecan. However, in light

of the fact that the plain/glottalised contrast has not been lost in any other Mayan language , and the fact that there does seem to be an attempt at times to transcribe glottalisation, my assumption is that its inconsistent representation in Chicomuceltec is a consequence of inadequate transcription rather than actual absence. The issue of Chicomuceltec vowel length must remain unresolved as this is not marked in the sources. Occasionally double vowels are transcribed, but it can not be determined whether this represented vowel length, or a medial glottal stop.

With the Huastec-Chicomuceltec correspondence sets established, the main obstacle in reconstructing the sound shifts from Proto-Mayan to Huastecan has lain in the paucity of Huastecan cognates with Proto-Mayan etyma. In most instances despite the small number of Proto-Mayan etyma, the Proto-Mayan phonemes in question occur frequently enough in the cognate sets that do exist to be able to establish with reasonable certainty their shift or retention in Huastecan. Several Proto-Mayan phonemes occur only seldom in the data however, which rendered it a problematic task to ascertain the precise development of these particular phonemes in Proto-Huastecan. This was particularly the case with PM **η, **w, and **h. Given the variety of reflexes that these three phonemes have in Huastecan it cannot be determined with complete certainty what the phonological conditions were that were producing the variety of reflexes for these PM phonemes. The lack of PM forms with Huastec cognates containing the phonemes **$\hat{t}$, **$\hat{t}'$, **t, **t', **$\check{c}$ and **c' also meant that some amount of inference was required in ascertaining the most plausible sound shifts. In the case of **$\hat{t}(')$ its reflexes could be reasonably assumed from the adequate number of regular cognate sets containing its plain counterpart. The cognate sets containing reflexes of PM **$t(')$ are very few, but regular where they do occur, and reflected by a regular correspondence set in Huastecan (Chc *t* : Vcz *ts* : Pot *č*). The instances of PM **$\check{c}(')$ with Huastec reflexes are very scarce and its Proto-Huastecan reflex could only be speculated on the basis of such limited data.

Bearing these difficulties in mind, the comparison of Proto-Mayan vocabulary with Huastecan cognates revealed the following major sound changes in the phonological development from Proto-Mayan to Proto-Huastecan:

**t̂ (') > *t(')
**ts(') > *t(')
**t(') > *ṭ(')
**k(') > *č(')
**q (') > *k(')
**q(') +o/u + w/y/h/ʔ > *k(')ʷ
**ʔ > ø /__C#
**η > *w /#__
> *h /__# or > *w > h /__#)
**w > ø /#__V_r (and in certain other cases, the precise phonological conditions for which are unable to be determined from the data available)
**h > *h or *b or *w /#__V (cf. 4.1.26)
> y(ʔ) /a(ʔ)__#
> w /_V_ry or w + CV
**x > h

Two chain shifts have been noted in the above sound changes:

1 **k(') > *č('), **q (')> *k('); resulting in the merging of **k(') and **č(') to *č(').
2 **t(') > *ṭ('); **t̂ (') and **ts(') > *t(');

A general tendency towards fronting is apparent in the development of the velar stops and of dental and palatalised stops and affricates (with the exception of **t(') > *ṭ(')).

After the Huastecan split, *b merged with *w and *ṭ(') shifted to t(') in Chicomuceltec. In Huastec *s shifted to θ, a further example of the fronting tendency apparent in the Huastecan sound changes. With the independent development of the Huastec dialects, Veracruz shifted *ṭ(') to ts('), Potosí shifted *ṭ(') to č(') and č(') to ts('). Huastec (both dialects) had *ṭ(') (or something similar) at least as late as 1530, on account of Spanish borrowings of tree names which have č as the corresponding phoneme and also as the phoneme corresponding to Huastecan č (contemporary Vcz č, Pot ts), suggesting that the two phonemes were similar enough not to be distinguished in Spanish borrowings (cf. 4.1.7). The Potosí shift of č > ts post-dates the Conquest on account of various Spanish borrowings into Potosí which also underwent the sound shifts. It must have already taken place prior to the late 18th century however, as Tapia Zenteno, writing in 1767 on the Potosí dialect, has <tz> for this phoneme (cf. 2.3.2).

PM vowels were shown to be generally the same in Huastecan, with certain notable exceptions. First, a number of cognate sets revealed Huastec reflexes (vowel length was not indicated in the Chicomuceltec sources) of PM vowels that differed from the latter only in length. Various cognate sets indicated that the length of Huastecan vowels was influenced by the presence or loss of PM **η, **ʔ, and **h where it originally occurred immediately following the vowel in question. It has been speculated that other cases of vowel length change in Huastecan possibly took place in order to differentiate between pairs of words inherited from Proto-Mayan that would have otherwise been identical as a result of phoneme merging.

The second set of exceptions involving Huastecan reflexes of Proto-Mayan vowels involves certain cases where PM vowels became fronted in Proto-Huastecan, or at a later stage in either of the languages following the Huastecan split. Two different vowel-substitution processes have been identified as the reason for the vowel shifts. First, there is a tendency for vowel harmony between the vowel of the suffix and that of the root. Second is a vowel-ablaut feature where lower-back vowels are replaced by higher vowels in derivatives. Huastecan forms which possess a higher, more fronted vowel than the cognate PM forms are possibly cases where the original base form has been lost in Huastecan, with only the derivative remaining. This vowel-shift phenomenon probably began during the Common Huastec period, but continued independently in the individual languages after the break-up of Huastecan, given that Chicomuceltec and Huastec themselves have divergent vowels in certain cognate sets.

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Huastecan's importance in informing our understanding of Proto-Mayan and Mayan historical linguistics cannot be underestimated, given its unique position in the family. As was illustrated in the final chapter, there are still many uncertainties regarding Huastecan's position in the Mayan language family, and the various mysteries surrounding Huastec's geographical separation from its

now extinct sister language. Little more is likely to be gleaned from the Chicomuceltec data, though there is always the tantalising prospect that previously unknown documents on the language will resurface. Continued research on the individual Mayan languages and the nature of linguistic contact both across the various Mayan languages and between Mayan and extra-Mayan languages will, I hope, help to resolve some of the uncertainties involving Huastec and increase our overall understanding of the language family and Huastecan's place in it.

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Appendix I

Chicomuceltec Affixes and Particles

Below, examples of various affixes and participles occurring in the Chicomeltec data are presented, alongside possible Huastec cognates. The relevant morpheme is highlighted in the Chicomuceltec forms, which are given in their original orthographies.

Chicomuceltec		Huastec	
an			
*<**an**sip>*	'bee'	*an*	definite article
*<**an**tuch>*	'coyote'		
suku			
*<**sucu** pulic>*	'big'	No Huastec cognate. Possibly an adjectival intensifier.	
*<**sucu** utat>*	'near'		
*<**sucu** uich>*	'far'		
*<**sucu** bulik>*	'thick'		
*<**sucu** batos>*	'low'		
*<**sucu** yan>*	'much'		
*<**sucu** ihel>*	'high'		
u			
*<**u**-xal>*	'cheek'	*u*	'my'
*<**u**tichín>*	'egg'		
*<**u**yu valil>*	'fruit'		
*<**u**yám>*	'mother/son-in-law'		

a

*<ual **a** vichit>*	'chest'	*a*	'your' (sg)
*<hul **a**-hual>*	'eyelashes'		
*<ul **a**-oc>*	'hair'		
*<**a** tul>*	'meat'		
*<**a** chikéu>*	'sweat'		
*<**a**luvál>*	'tears'		
*<**a**-pahau>*	'sandals'		
*<**a** chalmil>*	'shade, shadow'		

tu

*<**tu**okól>*	'skin'	*tu*	'us, you (plural)'
*<tam **tu** kovák>*	'little finger'		'we who are your' (McQuown
*<epe **tu** kovák>*	'thumb'		1978)
	(mother of the hand)		

ta

*<**ta**huma>*	'dumb'	*tata:?*	'you' (polite, sg)
*<**ta**yejel>*	'high'		
*<**ta**pulik>*	'fat'		

al

*<**al**ví>*	'chin'	*a:l*	'in'

ku/ko

*<**ku**chehet>*	'thigh'	*tuku*	'us, ourselves' (Potosí)
*<wan**ku**>*	'buttocks'	Possibly a preposition in Chc– 'on, beside,	
*<tetel tu**ku** valik>*	'back'	top of?'	
*<otol tu**ku**vi>*	'lip'		
*<tu**ko** ichác>*	'toes'		

i

<***i**valíl*>	'fruit'	*i*	'some of' partitive
<***i**majol*>	'cave'	*i*	unspecified possessor, eg *i tay?* 'someone's lime'

(l)om

<*chemelom*>	'corpse'	*-lom* suffix indicating collective nouns
<*ilaxóm*>	'doctor'	In Chicomuceltec the form appears to have a
<itet**lom**>	'husband'	particular relation to people types.
<inik quima**lom**>	'man	
(Lit. "man of the house"?)		

tik

<*ixkaj**tik***>	'woman	Vcz *–tsik* plural suffix

ič

<*yejelí**ch***>	'big'	Vcz *-ič,* particle denoting completed event
<*xemenej**ich***>		Pot *-its*
<*vanaji**tz***> *(ič)*		

na

<*pa**na**tika*>	'urine' (verbal form?)	*na*	'I'
<*ta**na**toxit*>	'straight' (verbal form?)		
<*to**na**cavita*>	'voice' (verbal form?)		
<*to**na**cabij*>	'name' (verbal form?)		
<*te**na**chihát*>	'excrement' (verbal form?)		

ta

<***ta**natoxit*>	'straight'	*ta*	adjectival intensifier
<***ta**helatnika*>	'good'		

ni

<yax**ni**>	'green'	*-ni?*

<chac**ni**>	'red'	Also occurs as the second morpheme of various colours in Huastec (*yasni?* 'green', *θakni?* 'white', *čakni?* 'red'). Possibly a fossilised colour classifier
<sak**ni**>	'white'	
<k'an**ni**>	'yellow'	

Appendix II

Chicomuceltec word-lists

In the following appendix the entire list of documented Chicomuceltec vocabulary items is presented, given in the respective original orthographies of Sapper (1912) and Termer (1926), alongside a standardised version that conforms to the orthography used throughout this work to represent Huastec, Proto-Huastecan and Proto-Mayan forms (cf. 1.5). Glottalisation is not marked in the standardised form unless it appears in one of the original transcriptions. It is noted if the corresponding Huastec form is glottalised. It is also noted when any Chicomuceltec form has no Huastec cognate. Where possible, cognates in other Mayan languages are identified. Inconsistencies arising from the scribal practices of either Sapper or Termer are discussed where relevant.

Appendix II

English (Spanish)	Chicomuceltec (Termer)	Chicomuceltec (Sapper)	Standardised	Notes
afternoon, night (tarde, noche)	aklem	tan aclem	aklem	
air fan (soplador)		ahutasi	a hutasi	
always (siempre)	venoni		we noni	Hua has final glottal stop: we? = 'a little', Hua ohni? = 'yes'
ant (hormiga)	sanich	sanich	sanič	
ant, yellow (sompopo)		moc xok'ok	mok šok'ok	Possible related to Vc šok'ok 'strike with the beak'
arm (brazo)	tihík		tihik	
armadillo (armadillo)	uotó	uotó	woto	<uoto> suggests that Chc does not have the constraint against w /#_o,u that Hua has. (cf. 4.1.25-26)
armpit (sobaco)	alam jototz		alam hotots	
arnotto tree (achiote)		quitá	kita	No Hua cognate
ashes, lime (ceniza, cal)	tai (ash)	tai	tay	
attic, roof (tabanco)		oquimá	ok kima	ok = 'head'; kima 'house'

English (Spanish)	Chicomuceltec (Termer)	Chicomuceltec (Sapper)	Standardised	Notes
aunt (tia)		xapin	šapin	No Hua cognate cf. Chc 'grandfather', 'grandmother'; me:šep 'grandmother' (Toj), panošip 'grandmother' (Chn)
avocado (aguacate)		ou	ow	
back (espalda)	tetel tuku valic		tetel tu ku walik	No Hua cognate wal 'eye' (cf 'chest')
bad (malo)	maltaban		mal tawan/mal tapan	No Hua cognate <mal> - Spanish. <b> is generally p or w misheard (cf. 3.1.1-3.1.2)
banana (plátano)	pulá	pulá	pula	
bark (corteza)	otox té		otoš te	te = 'tree'
basket (cesta)		ex	eš	
bat (murciélago)	sot	sot	sot	Hua θut' has final glottalised t'
beak (pico)	isam		isam	
beam (calzonte)		nacajté	nakah te	No Hua cognate te = 'tree'
beam (viga)		pam	pam	
bean (frijol)	chenúk	chenúk	čenuk	

English (Spanish)	Chicomuceltec (Termer)	Chicomuceltec (Sapper)	Standardised	Notes
beard (barba)	xuul	xucul	šul/ šukul	No Hua cognate T's double vowel may indicate a medial glottal stop or a long vowel.
beautiful (bonito)		bulic	pulik	Cases of <b> in Chc transcriptions are generally misheard p or w (cf. 3.1.1-3.1.2). Note that Chc 'beautiful' has the same form as 'big', the latter transcribed by S with the expected p.
bed (cama)		chei	čey	
bee (abeja)		chalam cheten	čalam četen	
bee (abeja)	ansip		sip	an = definite article in Hua
big (grande)	yejelích		yehelič	
big (grande)		sucu pulic	suku pulik	<suku> occurs in connection with a lot of Chc adjectives, it is possibly some form of intensifier. It does not appear to have any Hua correspondence (cf. 'near', 'far', 'thick', 'low', 'much', 'high').
bitter (amargo)		cheec	ček	S was possibly attempting to transcribe a medial glottal stop by means of the double vowel, or possibly a long vowel. The Huastec forms have a medial glottal stop: tsa?ik
blind (ciego)	pataxovac		patašowak	No Hua cognate
black (negro)		ek'inik	ek inik	inik = 'body, person, man'
blood (sangre)	chich	xich	čič / šič	

English (Spanish)	Chicomuceltec (Termer)	Chicomuceltec (Sapper)	Standardised	Notes
blouse (blusa)		cahal	kahal	Possibly cognate with Vcz kaya:l 'transparent dress'
boat, trunk (bote, tronco)		tan	tan	
body (cuerpo)	iník		inik	
bone (hueso)	veklék	ueclec	weklek	
bottle gourd (tecomate)		tuc	tuk	No Hua cognate
boy (young) (niño)	tuxti inik	tuxtiquinic	tušti(k) inik	inik 'body, person, man' The first word has no Huastec cognate. It presumably has the meaning of 'small' or 'young'. Interestingly, S's transcription suggests an initial w in inik, which would render it closer to PM **winak. All other cases of transcriptions of inik in Chc are vowel initial however.
boy, grandchild, son (muchacho, nieto, hijo)	uíu		wiw	No Hua cognate Possibly u iw 'my boy'
brain (cerebro)		anchul	čul	No Hua cognate an = definite article in Hua
branch (rama)		queelté	kel te/ k^{w}el te	There was possibly a medial glottal stop in kel, (ke?el) on account of the double vowel indicated by S. Alternatively the double vowel may have been an attempt to transcribe a long vowel

English (Spanish)	Chicomuceltec (Termer)	Chicomuceltec (Sapper)	Standardised	Notes
brave (bravo)	ta suku mal inik		ta suku mal inik	suku - possibly some sort of adjectival intensifier (cf. other adjectives 'big', 'near', 'far', 'thick', 'low', 'much', 'high') inik 'man'
breath (aliento)	ik	ik	ik	Hua ik' is glottalised
bridge (puente)		pamté	pam te	Hua te? 'tree' has a final glottal stop
bridge (hanging) (puente colgante)		vuelchá	wel ča	No Hua cognate wel 'road' ča - cf. Chc 'hammock'
broom (abanico)	pes	pes	pes	
brother (hermano)	ucú	uktak	uku/ uktak	No Hua cognate Cf. win uktak 'brother' (Chu)
brother (younger) (hermano menor)	vakám	acau	wakam/akaw	No Hua cognate
brother-in-law (cuñado)		uai	way	
buttocks (asentaderas)	vankú, xilá		wan ku, šila	ku is found in connection with several other words for body parts cf. 'thigh', 'back', 'lip'
cat (gato)		mis	mis	
cave (cueva)	imajol	jol (gorge, hollow, ravine)	(ima) hol	
charcoal (carbón)		cuxix	kušiš	

English (Spanish)	Chicomuceltec (Termer)	Chicomuceltec (Sapper)	Standardised	Notes
cheek (mejilla)	u-xal (my cheek)	xal	šal	
chest (pecho)	val vichit	ual a vichit	wal a wičit	Lit. 'eye-(of)-your-heart-'
chile (chile)		ich	ič	
chin (barbilla)	alví		al wi	Hua a:l 'in'
cigar (puro)	tucuúch		tukuč	The double vowel may have been an attempt to transcribe either a glottal stop, or a long vowel. Or T may have been hearing two words. No Hua cognate, though possibly related to Vcz t'uliy 'to roll' (cigaratte, etc)
clay (barro)		anam	anam	
cloth (woollen) (paño de lana)		ectaam	ektam	No Hua cognate Double vowel possibly indicating a medial glottal stop, or a long vowel.
clothing (ropa)		ta	ta	No Hua cognate
cloud (nube)	siál	siál	siyal	No Hua cognate
cold (frío)	chaíl	chail	čayil	Vcz č'a:yil = 'cold' has initial glottalised č'
comb (peine)	saím	saín	sayin/sayim	No Hua cognate
cord, string (cordel)		sapup	sapup	

English (Spanish)	Chicomuceltec (Termer)	Chicomuceltec (Sapper)	Standardised	Notes
corn cob (olote)		hohol	hohol	
corn drink (atole)		yu	yu	
corn ear (mazorca)	vai	vuai	way	Hua has final glottal stop: way?
corn field (milpa)	alé	alé	ale	
corn husk (hoja de elote)		omot	omot	
corn kernel (grano de maíz)	isís	vual isis	(wal) isis	
corpse (cadáver)	chemenekitz, chemelom		čemenekič čemelom	T's final <tz> is presumably a mishearing; this suffix, denoting completed acts, is given elsewhere as <ich> (cf 3.7 for discussion of this) Hua -lom suffix indicating collective noun
cotton (algodón)	kuním	kuním	kunim	
country (campo)	tom	tom (plain)	tom	
cousin (primo)		uicha	wiča	No Hua cognate Cf. ičak' (Chl), wikan (Q'an)
coyol palm (coyol)		mep	mep	
coyote (coyote)		antuch	tuč	an = definite article in Hua
crab (cangrejo)		tak'us	tak'us	No Hua cognate

English (Spanish)	Chicomuceltec (Termer)	Chicomuceltec (Sapper)	Standardised	Notes
crate (cacaste)		colalte	kolal-te	No Hua cognate te 'tree'
crocodile (cocodrilo)	en	en	en	
custard apple (anona)		ajte	ah-te	No direct Hua cognate te 'tree'
dance (baile)	kuixmach		k^{w}išmač	No Hua cognate
dark (oscuro)	yakux		yakuš	No Hua cognate
daughter (hija)	atic		atik	
day (día)	itá	k'ita	k'ita	
day after tomorrow (pasado mañana)		chauic	čawik	
day before yesterday (antier)		chauichich	čawičič	
deaf (sordo)	taxaltojitz		tašaltohič	No Hua cognate. <tz> generally č misheard. -ič = particle for completed events Cf. toh 'deaf' (Kak)
death (muerto)	xemenejich		čemenehič	<x> = č, in keeping with the correspondence Chc č : Vc č : Pot ts. Pot tsemenekits 'it's already dead'. Note that in most cases <x> represents š
deep (profundo)	lejem		lehem	

English (Spanish)	Chicomuceltèc (Termer)	Chicomuceltec (Sapper)	Standardised	Notes
deer (venado)	vitím	vitím	witim	
dew (rocío)		chochun	čočun	Hua forms are glottalised (Vc č'oč'un)
dirty (sucio)	tutum	tutum	tutum	No exact Huatec cognate, though possibly related to Vcz tuma:š 'clear, clean (water)'
doctor (médico)	ilaxóm		ilašom	
dog (perro)	sul	sul	sul	
door (puerta)		ochental	očental	
dream, to sleep (sueño, dormir)	navajich, vatiu (dream)		nawahič watiw	
drum (tambor)		ahau	ahaw	
dry (seco)	vainék	vainekil	waynek	
dumb (mudo)	tahuma		tahuma	PM form and Vcz and Pot have final glottal stop (PM uma?; Vcz & Pot mo:?)
dust (polvo)		pohos	pohos	
ear (oreja)	juchún	uochun	hučun	Pot 'hutsun'. S's initial <u> is presumably misheard
earring (arete)		pajac	pahak	No Hua cognate
earth (tierra)	amal (earth)	anam (clay)	amal anam	

English (Spanish)	Chicomuceltec (Termer)	Chicomuceltec (Sapper)	Standardised	Notes
earthquake (tembior)		pachau	pačaw	Vcz pač'uw has glottalised č'
eclipse [solar] (eclipse solar)	palpacheval k'akal		palpačewal k'akal	Vcz k'ak'al 'light of the sun' is glottalised
egg (huevo)	utichín	ul	utičin / ul	Note that Chc 'hen', presumably related, has initial č: <chichin>
elderly man (anciano)	cheminik		čeminik	Vcz čem 'to die'; inik 'man'
empty (vacío)		toty atan	toti atan	No Hua cognate
excrement (excremento)	tenachihát (verb?)		tenačihat	final <t> may be a glottal stop misheard (cf Vcz č'iha? - 'to shit' (trans vb)
eye (ojo)	val	jual	wal	
eyebrows (cejas)		babaxic	papašik/wawašik	No Hua cognate <b> is typically p or w misheard (cf. 3.1.1-3.1.2).
eyebrows, eyelashes (cejas, pestañas)	juluval (feathers of the eye)	hul a-hual (eyelashes)	hul a wal	Vcz huhul 'chest hair, arm hair', huh 'wool, feathers, body hair' Hua a = 'your'
far (lejos)		sucu uich	suku wič	<suku> is present in a lot of Chc adjectives, possibly some form of intensifier. It doesn't appear to have any Hua correspondence (cf. 'big', 'near', fat, 'thick', 'low', 'much', 'high').
fat (gordo)	tapulik	sucu bulik (thick)	ta pulik suku pulik	<suku> (see above). S's <b> presumably p misheard.
father (padre)		calé	kale	No Hua cognate

English (Spanish)	Chicomuceltec (Termer)	Chicomuceltec (Sapper)	Standardised	Notes
father, god (padre, dios)	ajtíc (father - infantile voice) tekuajtic (god)	ajtic (father)	ahtik teku ahtik	
father-, mother-, son-in-law) (suegro, suegra, yerno)	uyám (mother-in-law/son-in-law)	yam (mother-in-law/father-in-law)	yam	Hua u = 'my'
feathers (plumas)	jujul	jujul	huhul	
fence (cerca)		tanau	tanaw	No Hua cognate
field (campo)	tom	tom	tom	
file, punch (lima, punzon)	tesíl		tesil	No Hua cognate
fin (aleta de pez)	pavaú		pawaw	
fingernail (uña)	ichác	ichac	ičak	
fire (fuego)	si	si (fire, light)	si	Hua correspondence has final glottal stop: θi?
firewood (leña)	si	si	si	
fish (pescado)	toól	toól	tol	The double vowel in T and S's forms may be an attempt at transcribing a medial stop, or a long vowel. There is a medial glottal stop in the Huastec correspondencs: to?ol.
fishing rod (caña de pescar)	uchíl		čil	No Hua cognate Hua u = 'my'

English (Spanish)	Chicomuceltec (Termer)	Chicomuceltec (Sapper)	Standardised	Notes
flea (pulga)	cha'c	chac	čak	Hua forms have the initial consonant glottalised: Vcz č'ak; Pot ts'ak
flint (pedernal)		tuhil ixlabon	tuhil išlabon	eslabon' = Sp. ('a chain link used to strike sparks for making fire')
flower (flor)	vichilté	vichil	wičil (te)	te = 'tree'
flute (flauta)		chul	čul	
fog (niebla)	cham		čam	
forehead (frente)	val	ual	wal	
forest (bosque)	ilal		ilal	
forwards (adelante)	vanajitz		wanahič	T's final <tz> is presumably a mishearing; this suffix, denoting completed acts, is given elsewhere as <ich> (cf 3.1.7)
frog, toad (rana, sapo)	ch'uch 'frog'	ch'uch 'toad'	č'uč	No Hua cognate Cf. č'uč' 'frog' (Toj)
fruit (fruto)	ivalíl	uyu valil	iwalil uyuwalil	Hua i = partitive prefix 'some of', or 'our'. Hua u = 'my'
full (lleno)		tutenic	tutenik	Hua form is glottalised: Pot t'učenek
harpoon (arpón)	toxtál		toštal	Possibly cognate with Vcz t'oštoy 'to hit someone with a little stick'
girl (muchacha)	ixc'at	ixcatan (bride)	išk'atan	PM **iš- 'woman, female', Vcz iša:m 'man's sister'.

English (Spanish)	Chicomuceltec (Termer)	Chicomuceltec (Sapper)	Standardised	Notes
good (bueno)	tahelatnika		tahelatnika	
gourd bowl (guacal)	hot	hot	hot	Hua forms have glottalised t': hot'ob
grandfather (abuelo)	uxapin		šapin	No Hua cognate. cf. 'aunt', 'grandmother'; me:šep 'grandmother' (Toj), panošip 'grandmother' (Chn) Hua u = 'my'
grandfather (abuelo)		mam	mam	
grandmother (abuela)		xepín	šepin	No Hua cognate. cf. 'aunt', 'grandfather'; me:šep 'grandmother' (Toj), panošip 'grandmother' (Chn)
grasshopper (langostón)	pichich		pičič	Vcz form has the first č' glottalised: pič'ič
green (verde)		yaxni	yašni	Hua forms have a final glottal stop: yašni?
griddle (comal)		tacao	takaw	
ground (suelo)	chavál	chauan	čawal čawan	The corresponding Huatec forms have final l.
guava (guayaba)		vuec	wek	
hail (granizo)		tu ab	tu aw	Chc may have lost the second syllable present in Hua t'uhub, or it may have existed, but not have been heard by Sapper - the corresponding Chc final syllable would have been huw, which would have been difficult to detect.

English (Spanish)	Chicomuceltec (Termer)	Chicomuceltec (Sapper)	Standardised	Notes
hair (cabello)	julók	ul a-oc	hul a ok hulok	Chc huhul 'feathers' Chc ok 'head' Hua a = 'your' Lit: 'feathers of your head'
hammer (martillo)		masuy	masuy	No Hua cognate
hammock (hamaca)	ch'a	ch'a	č'a	cf Vcz č'ah, Pot ts'ah 'vine'
hand (mano)	kovák	covak	kowak	Hua initial k is glottalised: k'ubak
hard (duro)		chapic	čapik	
hat (sombrero)		setel a oc	setel a ok	No Hua cognate ok = 'head'
head (cabeza)	ok	oc	ok	
healthy (saludo)	tajelatlika		tahelatlika	No Hua cognate, though the following may have some relation: Vcz heley 'to aleviate', Vcz 'likat 'strong' Hua ta = adjectival intensifier
heart (corazón)	vichit	ichit	ičit	T's initial <v> (w) may be the possessive pronoun 'my' (Hua u 'my', which in Chc may have become w before vowels). Hua correspondences have initial i like Sapper.
heat (calor)		camuhil	kamuhil	Hua form has glottalised k: k'amal 'fire, flame, light'.
heaven, sky (cielo)	valchavál	vualchavál	wal čawal	Chc wal 'face'; ' čawal 'ground'
hen (gallina)	pechechin	chichin	pe čečin čičin	Initial consonant is glottalised in Hua: Pot ts'itsin 'bird'.

English (Spanish)	Chicomuceltec (Termer)	Chicomuceltec (Sapper)	Standardised	Notes
here (aqui)	teninabatík		teninawatik/ teninapatik	This, and other similarly structured forms may be verbal forms (cf 'voice, 'excrement', 'straight', 'urine', 'good'). A possible connection with Vcz na? 'there' <b> is generally p or w misheard (cf. 3.1.1-3.1.2)
high (alto)	tayejel	sucu ihel	ta yehel suku ihel	<suku> occurs in connection with a lot of Chc adjectives, possibly some form of intensifier. It doesn't appear to have any Hua correspondence (cf. 'big', 'near', fat, 'far', 'thick', 'low', 'much'). Hua ta = adjectival intensifier Pot yehel 'grow tall'
hill (cerro)	chen	chen	čen	Initial consonant is glottalised in Hua: Pot ts'en
hog plum (jocote)		ten	ten	
hot (caliente)	k'a'k	k'a'k	k'ak'	Both consonants are presumably glottalised given the orthography of both T and S, and the fact that the corresponding Hua form is k'ak'
house (casa)	imá	kima	kima	T presumably did not hear, or mistranscribed his form without the initial k, given that S has it, and because it is present in the Hua correspondences. The Hua forms have initial glottalised k' and a final glottal stop: k'ima:?
husband (marido)		itetlom	tetlom	No Hua cognate i = 'our' in Hua -lom is a suffix denoting collective nouns in Hua
iguana (iguana)	osóu	osou	osow	

English (Spanish)	Chicomuceltec (Termer)	Chicomuceltec (Sapper)	Standardised	Notes
illness (enfermedad)	xemblau		čemlaw	<x> probably represents č in this case, rather than š, in correspondence with Vcz če:mla:h 'death' medial <b> is presumably misheard
intestine (intestino)	ch'ata		č'ata	Possibly cognate with Vcz ča? 'gizzards', though the latter isn't glottalised. Cf. also 'millstone'
jaguar (jaguar)		tzutuchó	čutučo	S's initial <tz> is probably č, as most cases where <tz> occurs in T and S's wordlists are shown to be mishearings of č (cf 3.1.7)
jar (large, earthenware) (tinaja)		mul	mul	
jaw (mandibula)		casaca	kasaka	No Hua cognate
jug (jarro)		chulpat	čul pat	Vcz pats; Pot pač 'pot'
knee, calf (rodilla)	tolotz	toloch	toloč	No Hua cognate <tz> is typically č misheard
knee (rodilla)	potonil		potonil	
leached corn (nixtamal)		cuchal	kučal	No Hua cognate
leaf (hoja)	sekelté	xequelté	šekel te	š seems the most likely initial consonant, given that the Hua forms have a corresponding initial š: Vcz šekel i te? 'leaf of tree'
left (izquierda)	chalankovak		čalan kowak	No exact Hua cognate kowak 'hand' cf. 'right'

English (Spanish)	Chicomuceltec (Termer)	Chicomuceltec (Sapper)	Standardised	Notes
leg, foot (pierna, pie)	akán	acan (foot)	akan	
light (adj) (claro)	tajaxitz		tahašič	Hua ta = adjectival intensifier <tz> is generally č misheard
lip (labio)	otol tukuví (upper lip) otol tukuví itialan (lower lip)	otol a-uit (skin of your mouth)	otol tuku wi otol tuku wi iti alan otol a wi	Hua tu = 'we who are your' ku/tuku occurs in connection with several other words denoting body parts, cf. 'buttocks', 'back', 'thigh' Pot tuku = 'us, ourselves'
little (poco)	tuxté		tuš te	No Hua cognate te 'tree'?
little (poco)		equetnic	eket nik/ek^{w}et nik	It is uncertain whether the Chc had labialised velars or not. The Huastec forms do have labialised velars (Vcz k^{w}etem 'single, only') and S's <que> does seem to sugest k^{w}, but he also writes <que> for 'leaf', which is not labialised in Hua.
little finger (meñique)	tam tu kovák		tam tu kowak	Hua t'am 'the young of animals, baby Hua tu 'your'. Chc kowak 'hand'. Lit 'baby of your hand'
liver (hígado)	mamal		mamal	
lizard (lagartija)	sec	sec	sek	Final consonant is glottalised and labialised in Hua : Pot θek'^{w}
long (largo)	nacat	acat	nakat	S's form presumably misheard or mistranscribed without initial n, as it is given by T, and is present in the corresponding Hua form: nakat

English (Spanish)	Chicomuceltec (Termer)	Chicomuceltec (Sapper)	Standardised	Notes
loom (telar)	chatál		čatal	
louse (piojo)		uch	uč	Hua final consonant is glottalised: Vcz uč'
low (bajo)		sucu batos	suku patos	Cases of <b> in Chc transcriptions are generally misheard p (cf. 3.1 and Hua pa 'to descend'). <suku> occurs in connection with a lot of Chc adjectives, possibly some form of intensifier. It doesn't appear to have any Hua correspondence (cf. 'big', 'near', 'far', 'thick', 'much', 'high'.
lung (pulmón)	okóu		okow	
man (hombre)	k'et	inik quimalom (perhaps lit. 'inhabitant of the house')	inik kimalom / k'et	inik 'man'; kima 'house'. -lom in Hua is a suffix for denoting collective nouns
mat (estera)	tat	tat	tat	
meat/flesh (carne)		a tul	a tul	The corresponding Huastec forms have the initial consonant glottalised and a glottal stop: Pot t'u?lek 'meat' Hua a = 'your'
medicine (medicamento)	ilál		ilal	
midday (medio día)	kvatitá	cvuat quitá	k^{w}at kita	Orthography of both T and S suggests an initial labiovelar (cf 3.1.11)
midnight (medianoche)		chejlacal	čeh lakal	cf. Vcz čehel 'half, middle' and akal 'night'

English (Spanish)	Chicomuceltec (Termer)	Chicomuceltec (Sapper)	Standardised	Notes
millstone (muela de molino)	cha	ch'a tamcha (hand roller (tam = son)) cha (stone)	ča tam ča	cf. Hua t'am 'the young of animals, baby'; ča? 'metate' (curved stone on which to grind maize)
moon (luna)	itz	ich	ič	Final consonant is glottalised in Hua:Vcz i:č'
morning (mañana)	c'alamé	tan calvat	tan kalwat k'alame	The Hua form kala:m is not glottalised
mosquito (mosquito)		ajlic	ahlik	
mosquito (mosquito)	unúm	unum tuchunun	unum (tu čunun)	No Hua cognate
mother (madre)	epé	epé	epe	No Hua cognate cf. Chc 'thumb'
mouse (ratón)		olom	olom	
mouth (boca)	tukuví	uit	tuku wi	S's final <t> may be a mishearing of a glottal stop, as T's form does not have a final t, and the corresponding Hua forms have a final glottal stop: wi? ku/tuku occurs in connection with several other words denoting body parts, cf. 'lip', 'buttocks', 'thigh', 'back'. Possibly a preposition 'on, top of' cf. also Pot tuku 'us, ourselves'
much (mucho)		sucu yan	suku yan	<suku> occurs in connection with a lot of Chc adjectives, possibly some form of intensifier. It doesn't appear to have any Hua correspondence (cf. 'big', 'near', 'fat', 'far', 'thick', 'low', 'high').

English (Spanish)	Chicomuceltec (Termer)	Chicomuceltec (Sapper)	Standardised	Notes
name (nombre)	tonacabij		tonakawih/ tonakapih	This, and other similarly structured forms may be verbal forms (cf 'voice, 'excrement', 'straight', 'urine', 'good'). Hua na = 'I' <b> is generally p or w misheard
narrow (angosto)		sucun	sucun	No Hua cognate
naval (ombligo)	c'oón	koon	k'on	The glottalised k' is on account of T's form (verified also by Hua: k'o?on). It possibly also had a medial glottal stop like Huastec, because of the double o in T and S's orthography, though it is also possible that a medial glottal stop between vowels in Huatec became a long vowel in Chc. (cf. also 'fish').
near (cerca)		sucu utat	suku u tat	<suku> is present in many Chc adjectives, possibly some form of intensifier. It doesn't appear to have any Hua correspondence (cf. 'big', 'fat', 'far', 'thick', 'low', 'high'). Hua u 'my' Chc tat 'mat' (?)
neck (cuello)	nuc chunuk (back of neck)	nuc	nuk ču nuk	
nest (nido)		quet	ket	
net (red)	k'ojom	k'ohom	k'ohom	The Pot form is also glottalised, though it refers to a fish, rather than 'net': k'ohom 'bagre' (fresh-water fish):
nettle (chichicaste)		lai	lay	The Hua form has a final glottal stop: lay?
new (nuevo)		avel	awel	No Hua cognate

English (Spanish)	Chicomuceltec (Termer)	Chicomuceltec (Sapper)	Standardised	Notes
night (noche)	akál	acal	akal	
nipple, breast (pezón, pecho de mujer)	im	im (breast)	im	
nose (nariz)	tzam	sam	sam	<tz> is presumably s misheard, though it may be č in correspondence with Hua ič'am 'beak. It is possible that the two forms 'beak' and 'nose' transferred their initial consonants in either Hua or Chc.
oak (roble)		jilam	hilam	
oar (remo)		tamtan	tam tan	Cf. Hua tan 'canoe', 'tam' 'young of animal, infant'. Possibly lit. 'baby of canoe', cf. 'little finger', 'mill stone'.
old (viejo)	cheminik	cheminik	čem inik	
party (cf day) (fiesta)	k'ij	k'i	kih	S presumably did not hear the final h.
penis (pene)	ul	ul (egg)	ul	
person (cf man) (persona)	iník	inik	inik	
pig (puerco)		xolo ilal xolo 'wild boar' la xolo 'porcupine'	šolo	Possibly related to Vcz šol ihi:l 'animal that procreates in woods, especially cedar' ilal 'forest'

English (Spanish)	Chicomuceltèc (Termer)	Chicomuceltec (Sapper)	Standardised	Notes
pineapple (piña)		masati	masati	No Hua cognate cf. masaʔ-tli (Nah)
pinole (pinole)		muos	mu os	No Hua cognate
plant (hierba)	pox		poč	<x> probably represents č in this case, rather than š, if it is cognate with Vc poč'oč 'plant that produces edible fruit, fruit of the common nopal'
pot (olla)	pat	pat	pat	
puma (puma)		chac cho	čak čo	Hua čak 'red'; čo:h 'lion'. Chc may have had a final h on čo not heard by S.
pumpkin (ayote)		ita	ita	No Hua cognate, unless it has some relation to Hua it'aθ 'banana'
rabbit (conejo)		coy	koy	
rain (lluvia)		au auquiltic au (time of rains)	aw awkiltik aw	
rainbow (arco iris)	tanilau		tanilaw	No Hua cognate
rat (rata)	olóm		olom	
rattlesnake (culebra de cascabel)	sotos		sotos	
red (rojo)		chacni	čak ni	
relative (pariente)	ichán	ichan	ičan	

English (Spanish)	Chicomuceltec (Termer)	Chicomuceltec (Sapper)	Standardised	Notes
representative (representante)	utata nabatíc		u tata nawatik/ napatik	No Hua cognate Chc tat 'mat' (?) Hua u 'my' Hua na 'I' <b> is generally p or w misheard (cf. 3.1.1-3.1.2)
resin (resina)	vijaál		wihal	The double a may signify a glottal stop or a long vowel
ribs (costillas)	saján		sahan	Cf. šaj (Toj) [1870 <j> sic] Possibly related to Hua θahan 'to shout, cry'
right (derecha)	chankovak		čan kowak	No exact Hua cognate kowak 'hand' cf. 'left'
road (camino)	vel	uel	wel	
roasting corn (elote)		ahan	ahan	
rock (roca)	hasam		hasam	No Hua cognate. Possibly 'water' + 'nose' (ha + sam)
roof, straw (tejado, paja)	tzin	tzin 'straw' sin 'hay'	sin (čin?)	No Hua cognate <tz> typically č misheard, but here is probably s, given that one of S's forms has s. Alternatively, there may be two forms, one derived from the other.
round (redondo)	ake vuelta		ake welta	No Hua cognate <vuelta> (Sp).
saliva (saliva)	tuj		tuh	
salt (sal)		et em	et em	Hua form has glottalised t: at'em

English (Spanish)	Chicomuceltec (Termer)	Chicomuceltec (Sapper)	Standardised	Notes
salty (salado)		tzuk'u chak'u tzuk (= sucu? That is, "much")	suku č'aku	<suku> occurs in connection with a lot of Chc adjectives, possibly some form of intensifier. It doesn't appear to have any Hua correspondence (cf. 'big', 'near', 'fat', 'far', 'thick', 'low', 'high', 'salty'). <chak'u> possibly has some connection with Vcz č'apu, Pot ts'aku; the medial <k> may have been a mishearing.
sand (arena)	kisíu	quisiu	kisiw	
sandals (sandalias)	pajaú	a-pahau	pahaw	a = 'your' in Hua.
scorpion (alacrán)		sini	sini	May have had a final y unheard by S (cf Hua θiniy)
seed (semilla)	viyé	ejil	wi ye ehil	wi ye possibly a verbal form (cf Hua i- 'he (she, it', dependent personal pronoun. This form may have had an original initial w lost in Hua and Vc yehey 'to mature'. Perhaps lit. 'it grows') <ehil> may have had an initial y unheard by S, in correspondence with Vcz yehey
shade, shadow (sombra)	xalám	a chalmil	čalam a čalmil	T's <x> presumbaly represents č, given the Hua correspondencs Vcz čalam; Pot tsalam
short (corto)	g	tontos	tontos	No Hua cognate
shoulder (hombro)	okoú	ocu	okow	
silver (plata)	tak'in	tak'in	tak'in	
single man (soltera)		chichontic	čičontik	No Hua cognate

English (Spanish)	Chicomuceltec (Termer)	Chicomuceltec (Sapper)	Standardised	Notes
single woman (soltera)		ixkajtic	iš kahtik	Vcz tsik = plural suffix
sister (hermana)	nunu		nunu	No Hua cognate Cf. <nun> (Toj) [final <n> is superscripted in source]
sister-in-law (cuñada)		atmun	atmun	
skin (piel)	tuokól	otol	okol otol	The <k> in T's form is possibly a misheard t, given that the Hua correspondences have t (glottalised): ot'ol 'bark of tree (ot' 'skin')
skirt (falda)		lacau	lakaw	
smoke (humo)	pa	ba	pa	S's <b> is presumably a p misheard.
snail (caracol)	ul	ul	ul	cf. 'penis'
snake (culebra)		chan	čan	
soft (suave)		balbut	pal put/wal wut	Cases of <b> in Chc transcriptions are generally misheard p or w (cf 3.1.1 and 'smoke' and 'thread').
son (hijo)	vatik	tamtic	atik tamtik	T's <v> may be possessive pronoun 'my' (cf Hua u 'my'). Hua atik 'son (of men)' Hua tam 'baby, young of animals'
sour (agrio)		yacu	yaku	No Hua cognate, unless the first syllable of Vcz 'flavoursome' is related: kuhuk

English (Spanish)	Chicomuceltec (Termer)	Chicomuceltec (Sapper)	Standardised	Notes
spider (araña)		am	am	
spindle (huso)	tuxux	tuxux	tušuš	<x> in this case represents š, in correspondence with Hua tošoš
squirrel (ardilla)		tuctuc	tuktuk	
star (estrella)	ot pajoot 'morning star'	ot	ot paho ot	
stick (baston)		coyó	koyo	May have had final w, unheard by S, in correspondence with Hua b: koyob
stick (to push a boat) (palo para empujar el bote)		sos	sos	No Hua cognate
stomach (vientre)	tucúl	tucul	tukul	
stone (piedra)	tuhu		tuhu	
stone sling (honda)	vixok		wišok	š may have been s misheard in correspondence with Pot θ: wiθok'lab
storm (tempestad)	chokí		čoki	
straight (derecho)	tanatoxit		tanatošit	This, and other similarly structured forms may be verbal forms (cf 'voice, 'excrement', 'name', 'urine', 'good'). ta = adjectival intensifier in Hua na = 'l' in Hua
sugar cane (caña de azucar)	pakelem	pajquelem	pahkelem	

English (Spanish)	Chicomuceltéc (Termer)	Chicomuceltec (Sapper)	Standardised	Notes
sun (sol)	k'ak'al	k'ak'al	k'ak'al	Hua forms are also glottalised: k'ak'al
sweat (sudor)	a chikéu	chic eu	čikew	a = 'your' in Hua.
sweet (dulce)		chiic	čik	Possibly had a medial glottal stop, represented by S's double vowel . There is a medial glottal stop in Hua: Vcz čiʔik, Pot tsiʔik
sweet manioc (yuca)		tzinté	činte	Cases of <tz> are generally č misheard. See 3.1.7 and 4.1.6 for discussion of this form.
sweet potato (camote)		is	is	
tamal (tamal)		vualis	walis	No Hua cognate.
tapir (tapir)	tiíl	til	til	No Hua cognate T's double vowel may indicate a medial glottal stop, or a long vowel Cf. <tiil> (Chl) [1695], til (Mot)
tobacco (tabaco)	mai	mai	may	
tail (cola)	véu	uéu	wew	
tears (lágrimas)	aluvál	laual	luwal lawal	a = 'your' in Hua. cf. Chc 'face' wal
thigh (muslo)	kuchejét		ku čehet	Vc čehet, Pot tsehet 'leg'. Chc ku possibly 'part' or 'top' (cf 'buttocks': wanku)
thin (flaco)	tayajya	yalya	yalya/yahya	No Hua cognate

English (Spanish)	Chicomuceltec (Termer)	Chicomuceltec (Sapper)	Standardised	Notes
thin, delicate (delgado)		tiyax	tiyaš	<x> in this case represents š, in correspondence with Hua t'ihaš. The initial consonant is glottalised in Hua.
thorn (espina)		k'islim	k'islim	Initial consonant also glottalised in Hua
thread (hilo)	poc	boc	pok	S's <b> is presumably a p misheard.
thumb (pulgar)	epe tu kovák (mother of the hand)		epe tu kowak	epe = 'mother tu = 'we who are your' in Hua
tick (garrapata)		tip	tip	
toad (sapo)	josc'a		hosk'a	
today (hoy)	aveni	pat	pat / aweni	pat - No Hua cognate aweni - cf. 'yesterday'
toes (cf finger nail) (dedos del pie)	tuko ichác	ichac	tuko ičak	T's tuko may be tuku? ku/tuku occurs in connection with several other words denoting body parts, cf. 'lip', 'buttocks', 'thigh', 'back'. Possibly a preposition 'on, top of' cf. also Pot tuku 'us, ourselves'
tomato (tomate)		tusai	tusay	
tomorrow (mañana)	kalamé	calamé	kalame	
tongue (lengua)	lekaú	lecau	lekaw	glottalised k' in Hua: lek'ab
tortilla (tortilla)		vuacan	wakan	

English (Spanish)	Chicomuceltec (Termer)	Chicomuceltec (Sapper)	Standardised	Notes
tortilla, thin, toasted (totposte)		ixvuac	iš-wak	No exact Hua cognate cf. 'tortilla' wakan
tooth (diente)	kamaú	camau	kamaw	
tortoise/turtle (tortuga)		petpet	pet pet	
town,village (poblado, aldea)	mulé	mulé	mule	
tree (árbol)	te	te	te	Final glottal stop in Hua: te?
tumpline (mecapal)		balau	palaw/walaw	No Hua cognate <b> is generally p or w misheard (cf. 3.1.1-3.1.2)
turkey (pavo)		c'asau	k'asaw	Initial consonant also glottalised in Hua: k'aθaw
urine (orina)	panatiká (verb?)		panatika	This, and other similarly structured forms may be verbal forms (cf 'straight', 'excrement', 'name', 'urine', 'good'). na = 'I' in Hua tsik = 'urine' in Vcz
voice (voz)	tonacavijata (verbal form?)		tonakawihata	This, and other similarly structured forms may be verbal forms (cf 'straight', 'excrement', 'name', 'urine', 'good'). na = 'I' in Hua
waist (cintura)		tucupuhil	tu ku puhil	tu ku is possibly tukul 'stomach' , otherwise tu - 'we who are your' in Hua ku - occurs in connection with several words denoting body parts, cf. 'thigh', 'buttocks, 'back', 'lips'
wall (pared)		jen	hen	

English (Spanish)	Chicomuceltec (Termer)	Chicomuceltec (Sapper)	Standardised	Notes
water (agua)	ha (water, river) velam ha (stream)	yaxha	ha yašha welam ha	Final glottal stop in Hua: haʔ yaš = 'green, fresh'
wet (mojado)		patix achaual	patiš ach a wal	ač' 'wet, damp' in Vcz (ats in Pot) a wal 'your eye, forehead'
whetstone (piedra de afilar)		hux	huš	No Hua cognate. Cf. huš (Yuc), huš (Mop) etc
white (blanco)		sakni	sak ni	
wide (ancho)	pelikival		pelikiwal	pulik 'big' Hua wa:l 'edge'
wide (ancho)		butanvel	putanwel	Cases of <b> are generally p misheard. wel 'road' Vc putat 'whole', puta:l 'all'
widow (viuda)	ilvaté	ilvuaté	ilwate	No Hua cognate
wife [cf woman] (esposa)	uxmal	uxmal	ušmal	
wind (viento)	ik	ik	ik	Final glottalised k' in Hua: ik'
wings (alas)	pavaú	pauau	pawaw	
woman (mujer)	uxúm	uxum	ušum	cf. 'wife'
worm, maggot (gusano)		sum	sum	

English (Spanish)	Chicomuceltec (Termer)	Chicomuceltec (Sapper)	Standardised	Notes
year (año)	huan echél		wan ečel	
yellow (amarillo)		k'anni	kan ni	
yesterday (ayer)	avechitz	vuelchit	awečič welčič	cf. 'today'
young (joven)	cheton		četon	No Hua cognate Cf. tseh to (Jac)
zapote (zapote)		itas	itas	t is glottalised in Hua forms: it'aθ
1	jun	jun	hun	
2	chate eu	chate eu	ča te ew	It is not clear what the function <te ew> is, this doesn't occur in the Huatec numbers. It is possibly some form of number classifier. <te> 'tree' or 'stick' (?)
3	oxte eu	ox te eu	oš te ew	
4	che te eu	che te eu	če te ew	
5	vote eu	vo te eu	wo te ew	Cf. 4.1.26 for a dicussion of the initial <w> here
6	kakte eu	kak te eu	kak te ew	
7	hukte eu	kk te eu	huk te ew	S's double k is presumably a misprint
8	vuaxakte eu	vuaxak te eu	wašak te ew	
9	vuelete eu	vuele te eu	wele te ew	
10	laute eu	lau te eu	law te ew	
11	juni lahu	jun i laju	hun i lahu	<i> is possibly from Spanish 'y', or an abbreviation of Hua ani 'and' '1 + 10'

English (Spanish)	Chicomuceltec (Termer)	Chicomuceltec (Sapper)	Standardised	Notes
12	chauilaju	chai i lahu	čaw i lahu	2 + 10' S's final i in <chai> presumably misheard on account of the following i.
13	oxe	ox i lahu	oš i lahu	3 +10'
14	tzee	che i lau	če i lahu	4 + 10'
15	boteu	o la te eu	wo-tew (wo te ew(?)/ o la te ew	T's '15' is almost identical to '5' (cf o-lah-uh (Tzu), olahu (Mam) '15'),
16	kakteu	o la teeu nam jun	kak-tew (kak te ew ?)/ o la te ew nam hun	T's '16' is almost identical to '6' (cf o-lah-uh (Tzu), olahu (Mam) '15'),
17	hukteu	o la teeu nan chateeu	huk-tew (huk te ew ?)/ o la te ew nan ča te ew	T's '17' is almost identical to '7' (cf o-lah-uh (Tzu), olahu (Mam) '15'),
18	vaxakteu		wašak-tew	T's '18' is almost identical to '8'
19	beleteu		wele-tew	T's '19' is almost identical to '9'
20	juninik	jun inik	hun inik	Lit 'one person'
21		juninik nam jun	hun inik nam hun	1 twenty + 1'
40		chau inik	čaw inik	2 twenties'
60		ox inik	oš inik	3 twenties'
80		che nek	če nek	nek = inik '4 twenties'
100		hoo inik	ho inik	five twenties'
120		hoo inik nam jun inik	ho inik nam jun inik	five twenties + one twenty'
200		chate ta hoo inik	ča te ta ho inik	2 x 5 twenties'
300		oxte ta hoo inik	oš ta ho inik	3 x 5 twenties'
400		che te ta hoo inik	če ta ho inik	'4 x 5 twenties'

Appendix III

A comparative word-list of Chicomuceltec, Huastec, Proto-Huastecan and Proto-Mayan

In what follows, the full list of Chicomuceltec and Huastec cognates is presented, alongside reconstructed Proto-Huastecan forms and Proto-Mayan etyma. Vowel length has not been reconstructed on account of the fact that vowel length is not marked in the Chicomuceltec sources. Alternative Proto-Huastecan forms or phonemes are given where it is unclear from the Chicomuceltec and Huastec correspondences what the original would have been. Proto-Huastecan consonants are glottalised wherever they are glottalised in the Huastec forms. Glottal stops (which are not marked in the Chicomuceltec sources) are marked in Proto-Huastecan only if they appear in both the Proto-Mayan form and the Huastec form. Proto-Mayan forms in square brackets indicate vocabulary items that are not cognate with Huastecan. This highlights vocabulary that is particular to the Huastecan branch and does not have cognates across the rest of the Mayan family.

Appendix III

English (Spanish)	Chicomuceltec	Huastec (Veracruz)	Huastec (Potosí)	Proto-Huastec	Proto-Mayan
afternoon, night (tarde, noche)	aklem	akal 'night'	akal 'night'	*akal	**a:q'ab'/ **ahq'ab' night) [KN]
alligator (lagarto)	en 'crocodile'	ahin	ahin	*ahin	**ahi:n [KN]
always (siempre)	we noni	we? 'a little' ohni? 'that yes'	we:? 'a little' ohni? ' yes'	*we(?) 'a litte'	
ant (hormiga)	sanič	θanič	θanits	*sanič	**sanik
arm (brazo)	tihik	tiyik 'elbow'	tiyik 'elbow'	*tiyik/*tihik	
armadillo (armadillo)	woto	bat'aw	bat'aw	*bat'aw/*bot'ow	[**ib'o:y]
armpit (sobaco)	alam hotoč	hotoč ala:l 'under'	hotots alam 'under'	*hotoč	
ashes, lime (ceniza, cal)	tay	tay? 'lime' ho:ltay? 'ashes'	tay? 'lime' ho:ltay' 'ashes'	*tay?	**ṭa?ɳ 'ashes'
attic, roof (tabanco)	ok kima	o:k' 'head'	o:k' 'head' k'ima:? 'home'	*ok' 'head' *k'ima? 'home'	
avocado (aguacate)	ow	uh	uh	*oh/*uh [cf. 4.2.2]	**o:ɳ
bark (corteza)	otoš te	ot'o:l i te? 'bark of tree'	ot'ol an té 'bark of tree' [A]	*ot'	

English (Spanish)	Chicomuceltec	Huastec (Veracruz)	Huastec (Potosí)	Proto-Huastec	Proto-Mayan
basket (cesta)	eš	e:š	e:š 'small basket made of palm'	*eš	**we:š 'pants'
bat (murciélago)	sot	θut'	θut'	*sot'	**so:ts'
beak (pico)	isam [cf. 'nose']	θam 'nose'	θam 'nose'	*sam	
beam (viga)	pam	pa:m 'load carried on the head'	pa:m 'load carried on the head'	pam	
bean (frijol)	čenuk	čanak'^{w}	tsanak'^{w}	*čenak'^{w}	**ke:naq'
beautiful (bonito)	pulik	pu:lek 'big'	pu:lik 'big'	*pulik	
bed (cama)	čey	če:y	tse:y 'bed of tlapechtli'	*čey	[**č'aht/ *ča:q']
bee (abeja)	sip	tip 'little tick'		*sip [cf. 'tick']	**si:p [KN] 'tick'
big (grande)	yehelič	yehče? inik' 'big, tall, rich (man)'	yehel 'grow tall' -its 'particle for completed events' [A]	yehel	[**nim]
big (grande)	suku pulik	pu:lek	pu:lik	pulik	[**nim]
bitter (amargo)	ček	ts'a?ik	ts'a?ik		**k'ah
black (negro)	ek inik (inik 'man', 'body')	ehek 'mestizo' ehek te:nek 'half breed'	ehek 'mestizo' ehekni? 'it is black'	*e(he)k	**q'eq [KN]
blood (sangre)	čič / šič	šič'	šits'	*čič'	**kik'

English (Spanish)	Chicomuceltec	Huastec (Veracruz)	Huastec (Potosí)	Proto-Huastec	Proto-Mayan
boat, trunk (bote, tronco)	tan	tan	tan	*tan	**t^{y}em 'boat' [K]
body (cuerpo)	inik		iniktal [A]	*inik	**winaq 'man'
bone (hueso)	weklek	beklek	beklek	*beklek	**b'a:q
branch (rama)	kel te/ k^{w}el te	k'^{w}e?	k'^{w}e?lab 'branch' in k'^{w}e?e:l an te? 'branch of tree'	*k'^{w}e(?)l	
breath (aliento)	ik	ik' 'breeze, wind, air'	ik' 'breeze, wind'	*ik'	**i:q'
bridge (puente)	pam-te		te?-pa:m	*te?-pam/pam-te?	*pam-te? (PChl) [KN] *pam-te? (Tzeltalan) [KN] (*pam = flat) [KN]
broom (abanico)	pes	peθoy 'clean 'table/wall = 'brush off''	peθob 'small brush or something with which to sweep'	*pes	[**me:s- 'broom' **mes 'to sweep']
brother-in-law (cuñado)	way	ba:y 'brother-in-law of man'	ba:y 'brother-in-law of man'	*ba:y	**b'al-uk
canoe (canoa)	tam tan 'oar'	tan	tan	*tan	**t^{y}em 'boat' [K]
cat (gato)	mis	mištu:n; mištu?	mitsu [A]	*mis-	**mis/mes (diffused)
cave (cueva)	(ima) hol	ho:l 'hole, stream'	ho:l 'hole'	*hol	**xol/xul [K]

English (Spanish)	Chicomuceltec	Huastec (Veracruz)	Huastec (Potosí)	Proto-Huastec	Proto-Mayan
charcoal (carbón)	kušiš	k^{w}išiš 'charcoal'	k^{w}išiš [A]	*k^{w}išiš 'charcoal'	
cheek (mejilla)	šal		šal (archaic) [A]	*šal	
chest (pecho)	wal a ičit (lit. 'face/ eye-heart') [cf. heart]		<zam u ychich> [TZ]	[cf. heart]	
chile (chile)	ič	ič	its	*ič	**i:k
chin (barbilla)	al wi (lit. 'in mouth')	al wiʔ 'interior of the mouth'	a:l 'in' alwi [A]	*al wiʔ [probably 'inside mouth']	**wiʔ 'top, tip' [K]
clay (barro)	anam		anam 'earth 'material)'	*anam	
cold (frío)	čayil	č'a:yil 'cold (sickness)'		*čayil	**kam 'to die'
cord, string (cordel)	sapup	θapu:pli:l 'stringy part of mango'	θapup 'ixtle'	*sapup	[**kih 'string']
corn cob (olote)	hohol	bohol	bohol	*bohol/*hohol [cf. 4.1.26]	[b'aqal']
corn drink (atole)	yu	yu:h	yu: [A]	*yu:h	**ul [K] (> MZ?)
corn ear (mazorca)	way	wayʔ	wayʔ	*wayʔ	**ŋal
corn field (milpa)	ale	ale	ale	*ale	**alVx [K]
corn husk (hoja de elote)	omot	o:m 'to sow'	o:m 'sower, sowing' omats 'sowing' [A]	*om	*homoč' (PChl) [KN]

English (Spanish)	Chicomuceltec	Huastec (Veracruz)	Huastec (Potosí)	Proto-Huastec	Proto-Mayan
corn kernel (grano de maíz)	(wal) isis	iθiθ	iθiθ	*isis	**iš-iʔm 'maize'
corpse (cadáver)	čemenekič čemelom	čeme:lom	tsemenekits 'it's already dead' [A]	*čemenekič *čemelom	**kam 'to die'
cotton (algodón)	kunim	k^{w}inim	k^{w}inim	*k^{w}inim	[**tiŋam]
country (campo)	tom	to:m 'zacate'	to:m 'zacate'	*tom	
coyol palm (coyol)	mep	ma:p	ma:p	*map	**map
coyote (coyote)	tuč		čuč	*tuč [cf. 3.1.5]	[**šoʔx]
daughter (hija)	atik		atik [A] atikla:lab 'creature, child'	*atik	
day (día)	k'ita	k'i:tsa:	k'i:ča:'day/sun'	*k'iṭa	**qʻi:ŋ 'sun, day'
day after tomorrow (pasado mañana)	čawik	č'abk'iʔ	tsabk'iʔ	*č'ab-	**ka:b'ex
day before yesterday (antier)	čawičič	čabk'iʔ	tsabk'iʔ	*čab-	**ka:b' (e)xer
death (muerto)	čemenehič	čemθaʔ 'to kill'	tsemenekits 'it's already dead' [A] tsemel 'dies'	*čem-	**kam 'to die'
deep (profundo)	lehem		lehem 'lake'	*lehem	[**ŋahb' 'lake']

English (Spanish)	Chicomuceltec	Huastec (Veracruz)	Huastec (Potosí)	Proto-Huastec	Proto-Mayan
deer (venado)	witim	bitsim	wičim 'horse' [A] bičin 'deer, stag' [A] bičim 'horse'	*bi̱tim	bḭ̌ḭ̌nă̰ [Isthmus Zapotec]
dew (rocío)	čočun	č'oč'on	ts'ots'on	*č'oč'-	**č'oč' 'earth, land'
doctor (médico)	ilašom	ila:liš 'curandero'	ila:liš	*ila-	**il 'to see' [KN]
dog (perro)	sul		θulul 'tepechiche'	*sul	[**ts'i?]
door (puerta)	očental	očtal 'entrance'	otsental [A] otsel 'enters'	*oč-ental	**ok 'to enter' [K]
dream, to sleep (sueño, dormir)	watiw	watsib 'dream' watsbil 'to dream'	wačib 'dream'	*wa̱tib	**war 'to sleep' [KN]
drum (tambor)	ahaw	ahab 'large guitar, double bass'	ahab 'guitar, antique drum, harp'	*ahab	**wahb' (**ax- '-er')
dry (seco)	waynek	waynek 'dry'	wanek 'dry' de wayel 'to dry'	*waynek	[**ta̱q-i?ŋ]
dumb (mudo)	tahuma	[mo:?]	[mo:?]	*uma/*mo?	**uma? [K]
dust (polvo)	pohos	pohoθ	pohoθ	*pohos	**poqs
ear (oreja)	hučun	šučun	šutsun	*šučun [Chc initial h presumably a later development or mishearing by transcribers]	**šikin
earth (tierra)	amal anam		anam 'earth - material'	*anam	[**č'oč' 'earth, land']

English (Spanish)	Chicomuceltec	Huastec (Veracruz)	Huastec (Potosí)	Proto-Huastec	Proto-Mayan
earthquake (temblor)	pačaw	pač'uw 'to crush'	pašlow 'to overturn, disturb' [A]	*pač'-	
eclipse [solar] (eclipse solar)	palpačewal k'ak'al	palaʔ 'to hang' k'ak'al 'light of the sun'	pala:l 'to hang' k'ak'al 'light of the sun'	*pal- 'hang' *k'ak'al 'light of the sun'	
egg (huevo)	utičin	i:č' 'moon' č'ičin 'bird'	ts'itsin 'bird'	*č'ičin 'bird'	**ts'ikin 'bird'
egg (huevo)	ul	olim 'bald, hairless'	olou 'testicle' [A] u:l 'snail'	*ol- 'egg, snail, penis' [cf. 'snail', 'penis']	**ŋolob'
elderly man (anciano)	čeminik	čemtsiθ ʔinik 'widower' čem 'to die' inik 'man'	tsemčiθ inik 'widower'	*čem-	**kam 'to die' [**winaq 'man']
excrement (excremento)	tenačihat	č'iha-l 'to shit' č'ihaʔ 'trans vb'	ts'ihal 'excretes'	*č'iha-	**tsa:ʔ [KN] **ts^{w}iʔ /tiʔ [K]
eye, forehead (ojo, frente)	wal	wal 'eye, face'	wal	*wal	[**waṭ' eye']
eyebrows, eyelashes [cf feathers] (cejas, pestañas)	hul a wal	huhu:l 'chest hair, hair on arm' huh 'wool, feathers, body hair'	in huhu:l in wal 'eyebrows' huhul = feather, skin of animal, wool, pubic hair [A] huhlec 'feather'	*huh-ul 'hair, feathers' *wal 'face, eye'	
fat (gordo)	ta pulik suku pulik	pu:lek	pu:lik 'big'	*pulik	
father, god (padre, dios)	ahtik teku ahtik	aha:tik 'god'	ahatik 'God, master, lord, patron' [A]	*ah(a)tik	**a:xa:w 'lord, ruler, owner'

English (Spanish)	Chicomuceltec	Huastec (Veracruz)	Huastec (Potosí)	Proto-Huastec	Proto-Mayan
father-, mother-, son-in-law) (suegro, suegra, yerno)	uyam	iya:m 'son-in-law'	iya:m 'father-in-law, son-in-law'	*-yam	**ŋi:ʔ 'son-in-law'
feathers [cf eyebrows etc] (plumas)	huhul	huhu:l 'chest hair, hair on arm' huh 'wool, feathers, body hair'	huhul 'feather, skin of animal, wool, pubic hair'	*huh-ul	[**q'u:q'-ul]
field (campo)	tom	to:m 'zacate'	to:m 'zacate'	*tom	
fin (aleta de pez)	pawaw		pabablek 'wing'	*pabab	[**ši(:)k' 'wing']
fingernail (uña)	ičak	ičik'	itsik'lek	*ičak'	*iSk'aq (nail, claw) [KN]
fire (fuego)	si	θila:l 'to become over-heated'	θiʔ 'firewood' θiʔ 'fire, light' [A]	*siʔ	**si:ʔ (firewood)
firewood (leña)	si	θiʔ	θiʔ	*siʔ	**si:ʔ
fish (pescado)	tol	toʔol	toʔol	*to(ʔo)l	[**kar]
flea (pulga)	čak	č'ak	ts'ak	*č'ak	**k'aq
flint (pedernal)	tuhil išlabon	t'uhub 'stone' t'uhbil an bel 'paving stone'	k'amal t'uhub t'uhub 'stone'	*t'uh- 'stone'	**to:n or **to:ŋ (stone)
flower (flor)	wičil (te)	wič	wits	*wič	[**nik]

English (Spanish)	Chicomuceltec	Huastec (Veracruz)	Huastec (Potosí)	Proto-Huastec	Proto-Mayan
flute (flauta)	čul	ču:l	tsu:l 'whistle'	*čul	**šul
fog (niebla)	čam	ča:m 'cold, ice, frozen'	tsa:m 'ice'	*čam 'cold, ice'	**kam 'to die'
forwards (adelante)	wanahič	wana, wana:č 'lets go'	wana 'we go' its (particle for completed events)	*wana- 'we go'	
fruit (fruto)	walil	wali:l 'fruit, male genitals'	wali:la:b	*wali:l	[**waṭ' eye']
full (lleno)	tutenik		t'učenek 'full' [A]	*t'uṭenik	[**nox]
girl (muchacha)	išk'atan		ts'ik'a:č	*-k'aṭ-	**iš- 'woman/female'
gourd bowl (guacal)	hot	hot'ob 'large gourd tree'	hot'ob 'gourd tree'	*hot'-	[**xohm]
grandfather (abuelo)	mam	ma:m 'old man, grandfather [impolite]'	ma:m	*mam	**ma:m 'grandson, nephew, grandfather' [KN]
grasshopper (langostón)	pičič	pič'ič	pitsits [A]	*pič'ič	[**sahk']
green (verde)	yaš-ni	yašni?	yašni [A]	*yaš-ni(?)	**ra?š
griddle (comal)	takaw	takab	takab	*takab	[**šoht]
ground (suelo)	čawal čawan wal čabal 'sky' ['face-earth']	čaba:l	tsaba:l 'earth'	*čabal	**kabal

English (Spanish)	Chicomuceltec	Huastec (Veracruz)	Huastec (Potosí)	Proto-Huastec	Proto-Mayan
guava (guayaba)	wek	bek	bek	*bek	[**kaq']
hail (granizo)	tu aw (lit. 'stone-rain')	iθiθ a:b (lit. grain-rain')	t'uhub a:b (lit. 'stone-rain')	*t'uh(ub) ab	**to:n or **to:ŋ 'stone' **ŋab' 'rain'
hair (cabello)	hul a ok hulok	huh'-lek' 'wool, feather, body hair' ok' 'head'	huhlek 'feather' o:k 'head' ok 'skull'	*huh- 'feather, hair'	
hand (mano)	kowak	k'ubak	k'ubak	*k'obak/*k'ubak [vowel difference cf. 4.2.2]	**q'ab
hard (duro)	čapik	čapik	tsapik	*čapik	[**kaw]
head (cabeza)	ok	ok' 'head'	o:k' 'head' ok' 'skull'	*ok'	
heart (corazón)	ičit	itsič 'heart, seed'	ičič 'heart, seed'	*ičit [cf. 3.1.5]	
heat (calor)	kamuhil	k'amal 'fire, flame, light'	k'amal 'fire, light'	*k'am-	
hen (gallina)	pe čečin čičin	č'ičin 'bird'	ts'itsin 'bird'	*č'ičin	*ts'ikin 'bird'
high (alto)	ta yehel suku ihel	yehey 'to mature'	yehel 'grow tall'	*yehel	
hill (cerro)	čen	č'e:n	ts'e:n 'mountain range'	*č'en	**k'eʔn 'hole, cave'
hog plum (jocote)	ten	te:n 'plum'	te:n 'plum'	*ten	

English (Spanish)	Chicomuceltec	Huastec (Veracruz)	Huastec (Potosí)	Proto-Huastec	Proto-Mayan
hot (caliente)	k'ak'	k'a:k'	k'a:k'	*k'ak'	**q'a:q'
house (casa)	kima	k'ima:ʔ	k'ima:ʔ 'home'	*k'ima(ʔ)	[**ŋa:h 'house']
iguana (iguana)	osow	oθow 'iguana'	oθo:w	*osow	
illness (enfermedad)	čemlaw	če:mla:h 'death'	tsemlab 'death, hell' [A] tse:mla: 'death'	*čem-lab	**kam 'to die'
jaguar (jaguar)	čutu čo	čoh 'chirrionera animal (lion family)'	tso:h	*čoh	**kox 'cougar'
jar (large, earthenware) (tinaja)	mul	mul 'pitcher'	mul 'pitcher'	*mul	**mul 'pitcher'
leaf (hoja)	šekel te	šek 'leaf' šekel i teʔ 'leaf of tree'	šekel 'individual leaf taken from tree' [A]	*šek-el	**ša:q
leg, foot (pierna, pie)	akan	akan 'foot'	akan 'foot'	akan	*aqan 'leg'
light (adj) (claro)	tahašič	tahaš 'clear, clarity'	taha:š 'light, brightness' takašits 'it's already clear' [A]	*tahaš	

English (Spanish)	Chicomuceltec	Huastec (Veracruz)	Huastec (Potosí)	Proto-Huastec	Proto-Mayan
lip (labio)	otol tuku wi otol tuku wi iti alan otol a wi	ot'o:l 'lips'	in ot'o:l in wi? 'lips' o:t' 'skin, peel' wi? 'mouth' ala:l 'downwards, underneath'	*ot'ol	**o:t' 'skin'
little (poco)	eket nik/ek^{w}et nik	k^{w}etem 'single, alone'	k^{w}ete:m 'single, alone' k^{w}e'et 'another' [A]	*k^{w}et-	[**č'in 'small']
little finger (meñique)	tam tu kowak	čakam k'ubak	in ts'uts'u: in k'ubak	*k'ubak/*k'obak 'hand' [cf. 4.2.2]	
liver (hígado)	mamal	mamal	mamal	*mamal	[**sehyub'/ **sehkub'/ **sahsib']
lizard (lagartija)	sek		θe:k'^{w}	*se:k'^{w}	
long (largo)	nakat	nakat	nakat 'long, high'	*nakat	**naxt
loom (telar)	čatal	čatal 'sword of loom'	tsatal [A] tsahumtala:b	*čatal	
louse (piojo)	uč	uč'	uts'	*uč'	**uk'
low (bajo)	suku patos		pa 'to descend' [A]	*pa- 'descend'	
lung (pulmón)	okow	okow 'small black wasp'	okow 'honeycomb'	*okow ' honeycomb' [Chc semantic shift from honeycomb to lung]	**okwoŋ 'honeycomb/waspnest' (< MZ into Lowland Mayan) [K]

English (Spanish)	Chicomuceltec	Huastec (Veracruz)	Huastec (Potosí)	Proto-Huastec	Proto-Mayan
man (cf person) (hombre)	inik kimalom	inik 'man' k'ima:ʔ 'house'	inik 'man' k'ima:ʔ 'home'	*inik *k'ima(ʔ)	**winaq
man (hombre)	k'et	k^{w}etem 'single, alone'	k^{w}ete:m 'single, alone' k^{w}e'et 'another' [A]	*k^{w}et-	[**winaq]
mat (estera)	tat	ta:t	ta:t 'petate'	*tat	(< Isthmus Zapotec da?)
meat (carne)	tul	t'uʔ 'flesh' t'uʔlek 'meat'	t'uʔu:l 'meat'	*t'uʔ-	[**ṭiʔ 'meat']
medicine (medicamento)	ilal	ila:l	ila:l	*ilal	**il 'to see'
midday (medio día)	k^{w}at kita	č'ehel k'i:tsa	kubat ak'iča [A]	*kubat k'ịta	**q'i:ŋ 'sun, day'
midnight (medianoche)	čehl akal	č'ehel 'half/middle' akal 'night'	ts'ehel 'half/middle' akal 'night'	*č'eh(e)l akal	**aq'b'(-al) 'night'
millstone (muela de molino)	ča tam ča	ča?	tsaʔ	*ča	**kaʔ
moon (luna)	ič	i:č'	i:ts'	*ič'	**i:k'
morning (mañana)	tan kalwat k'alame	kala:m 'tomorrow'	kala:m tam 'when'	*kalam	
mouse, rat (ratón, rata)	olom	olom 'pig'	olom 'pig'	*olom [not clear which language underwent the semantic shift]	[**č'oʔh 'mouse] [**kitam/**ahq 'pig']
mouth (boca)	tu ku wi	wiʔ	wiʔ	*wi(ʔ)	[**ṭi:ʔ]

English (Spanish)	Chicomuceltec	Huastec (Veracruz)	Huastec (Potosí)	Proto-Huastec	Proto-Mayan
much (mucho)	suku yan	ya:n 'much/many'	ya:n 'much/many'	*yan	**yab [K]
name (nombre)	tonakawih	bih	bih	*bih	**b'ih [KN]
naval (ombligo)	k'on	k'o?on	k'o?o:n	*k'o(?o)n	**k'u/**k'o 'belly' [K]
near (cerca)	suku utat	utat	utat	*utat	
neck (cuello)	nuk ču nuk	nuk'	nuk'lek	*nuk'	
nest (nido)	ket		k'ut'il		[**so:k]
net (red)	k'ohom		k'oho:m 'bagre (fresh water fish)'	*k'ohom [semantic shift possibly in Chc from fish > net]	[**pa:h]
nettle (chichicaste)	lay	čo:k lay? 'nettle' lay? 'small nettle'	tsoklay? 'nettle' [A]	*lay(?)	**lah
night (noche)	akal	akal	akal	*akal	**ahq'ab'/a:q'ab'
nipple, breast (pezón, pecho de mujer)	im		imil 'breast' [A] imil 'udder'	*im	**i:m 'breast'
nose (nariz)	sam	θam	θa:m	*sam	**tsa?m **tsa:m(?) 'snot'
oak (roble)	hilam		hilim [A]	*hilam/*hilim [cf. 4.2.2]	**xih
old (viejo)	čem inik	čemtsiθ inik 'old man'	tsemčiθ inik 'old man'	*čem-	**kam 'to die' **winaq 'man'

English (Spanish)	Chicomuceltec	Huastec (Veracruz)	Huastec (Potosí)	Proto-Huastec	Proto-Mayan
party (cf day) (fiesta)	kih	k'ih 'day, time'	k'ih 'time'	*k'ih 'day, time'	**q'i:ŋ 'day, feast day'
penis (pene)	ul	u:l 'snail'	ulil 'vagina' [A] u:l 'snail'	*ul 'penis, snail'	
person (cf man) (persona)	inik	inik 'man'	inik 'man'	*inik	**winaq 'man'
pot (olla)	pat	pats 'earthenware stewing pot'	pač	*paṭ	**pat
puma (puma)	čak čo	čak 'red, coloured' čo:h 'lion, "chirrionera" 'lion family'	tsakni? 'red, coloured' tso:h 'lion'	*čak 'red' *čoh 'lion, animal "chirrionera" 'lion family' ['red lion' is a common calque in Mesoamerican languages'	**kaq 'red' **ko:x 'puma' [K]
rabbit (conejo)	koy	koy	koy	*koy	(< Mixe Zoque *koya [K])
rain (lluvia)	aw awkiltik aw	a:b 'rain' a:bal k'ih 'time of water' a:b k'ih 'time of water' a:bal 'time of water'	a:b 'rain' k'ih 'time' k'ihil 'favourable time for something' [A] čik 'plural' [A]	*ab	**ŋab'
rattlesnake (culebra de cascabel)	sotos		θotoθ [A] θot'o? tsan	*sotos	
red (rojo)	čak-ni	čak ni?	tsak ni?	*čak-ni(?)	**kaq

English (Spanish)	Chicomuceltec	Huastec (Veracruz)	Huastec (Potosí)	Proto-Huastec	Proto-Mayan
relative (pariente)	ičan	iča:n	itsa:n 'uncle'	*iča:n	**ikan (older male relative, brother of parent) [K]
resin (cf water) (resina)	wi-hal	haʔil 'tontanel'	haʔli:l 'juice'	*ha(ʔ)l	**haʔ-al
road (camino)	wel	be:l	be:l	*bel	**b'e:h-el
roasting corn (elote)	ahan	ahan	ahan	*ahan	**ax(a)n
saliva (saliva)	tuh	tubay 'spit on'	tubkayal 'spit'	*tub-	**t^{y}uhb'/**tsub [K]
salt (sal)	et em	at'em	at'em	*at'em	**a:ts'-a:m
sand (arena)	kisiw	kiθib	kiθib	*kisib	
sandals (sandalias)	pahaw	pahab	pahab	*pahab	
scorpion (alacrán)	sini	θiniy	θiniy	*θiniy	**si:naʔɳ
seed (semilla)	wi ye ehil		yelab 'semen, seed' [A]	*ye-	**iha(:)ɳ/ **iŋa(:)t
shade, shadow (sombra)	čalam a čalmil	čalam čalmiy 'to shade'	tsalam	*čalam	[**muɳ]
shoulder (hombro)	okow	ok' 'head' o:k' 'top'	ok'up [A]	*ok' 'head'	

English (Spanish)	Chicomuceltec	Huastec (Veracruz)	Huastec (Potosí)	Proto-Huastec	Proto-Mayan
silver (plata)	tak'in	tak'in	tak'in [A]	*tak'in [presumably borrowed from a Western Mayan language, cf. 4.1.24]	**ʈa-q'i:ɳ (precious metal, lit "excrement-sun")
single woman (soltera)	iš kahtik	išaːm 'sister of man'	kač inik 'single man' [A]	*iš- 'woman, female'	**iš- 'woman, female'
sister-in-law (cuñada)	atmun	atmu:l 'brother-in-law of a woman, sister-in-law of a man'	at mu:l	*at-mul/mun	**muʔ (sibling-in-law of opposite sex) [K]
skin (piel)	okol otol	ot' 'peel, skin' ot'o:l 'bark of tree'	o:t'/ot'lab 'bark, shell, skin'	*ot'	**o:t' [K]
skirt (falda)	lakaw	lakab 'dress'	lakab [A]	*lakab	
smoke (humo)	pa	paw	paw	*paw	
snail (caracol)	ul	u:l	u:l	*ul 'penis, snail, egg'	[**pur/ **šoč/ **t'o:t']
snake (culebra)	čan	čan	tsan	*čan	**ka:n
soft (suave)	pal put	palu 'soft, mild'	palu 'fragile, soft, mild'	*pal-	

English (Spanish)	Chicomuceltec	Huastec (Veracruz)	Huastec (Potosí)	Proto-Huastec	Proto-Mayan
son (hijo)	atik tamtik	t'am 'infant, young of animals'	atik 'son of man'; t'am 'son of woman' [A] atikla:b 'creature, child' t'a:m 'infant, young of animal'	*atik *t'am	[**k'a:xo:l '(man's) son']
spider (araña)	am	a:m	a:m	*am	**am [K]
spindle (huso)	tušuš		tošoš 'malacate' (kind of capstan or windlass)	*tošoš	
squirrel (ardilla)	tuktuk	tukum	tukum [A]	*tuk-	[**ku?k]
star (estrella)	ot	o:t	o:t	*ot	[**e:q'/ **q'anal/ **č'umil]
stick (baston)	koyo	k'oyob 'stairs'	k'oyob 'wooden stairs'	*k'oyob	
stomach (vientre)	tukul	tsukul	čukul	*ṭukul	**k'u
stone (piedra)	tuhu	t'uhub	t'uhub	*t'uhub	**to:n or *to:ŋ
stone sling (honda)	wi šok	θit'ok, ts'its'ok' 'sling shot'	wiθok'la:b	*wi-sok	
storm (tempestad)	čoki		tsokil i ab [A] tsok tokow 'mist, drizzle'	*čok-	*ṭoq-al 'cloud'

English (Spanish)	Chicomuceltec	Huastec (Veracruz)	Huastec (Potosí)	Proto-Huastec	Proto-Mayan
straight (derecho)	tanatošit	tošk'iy 'to bar' (door, etc)'	tošk'i 'to bar'	*toš-	
sugar cane (caña de azucar)	pahkelem	pakab 'cane'	pakab 'cane'	*pa(h)k-	
sun (sol)	k'ak'al	k'ak'al 'light of the sun'	k'ak'al 'heat, sunrays'	*k'ak'al	**q'a:q' 'fire'
sweat (sudor)	čikew	čak'ib čihow 'smelling like sweat'	tsak'ib [A]	*čak'ib/ *čikib	**kiq/ **kiq' 'to sweat, burn' [K]
sweet (dulce)	čik	či?ik 'adj'	tsi?ik	*či?(i)k	**ki?
sweet manioc (yuca)	činte	t'intse?	t'inče?	*č'inte(?)/t'inte(?) [cf. 4.1.6]	**ts'ihn [KN]
sweet potato (camote)	is	iθ	iθ	*is	**i:s [KN]
tobacco (tabaco)	may	ma:y	ma:y	*may	**ma(?)y
tail (cola)	wew	wew	we:w	wew	**ŋe:h
thigh (muslo)	ku čehet	č'ehet 'whole leg'	ts'ehet 'leg'	*č'ehet 'leg'	**ts'eh (side) [K] ?
thin (delgado)	tiyaš	t'ihaš 'slight 'of quantity''	t'ihaš 'very little, small'	*t'ihaš / *t'iyaš	
thorn (espina)	k'islim	k'i:θ	k'i:θ k'iθlom 'where there are many thorns' [A]	*k'is [cf. 4.1.12]	**k'i?š
thread (hilo)	pok		pokθot 'grass, rattle snake' [A]	*pok	

English (Spanish)	Chicomuceltec	Huastec (Veracruz)	Huastec (Potosí)	Proto-Huastec	Proto-Mayan
thumb (pulgar)	epe tu kowak		mim a k'ubak (lit. 'mother of the hand') [A]	*k'obak/*k'ubak 'hand'	
tick (garrapata)	tip	tip 'little tick'	tip	*tip [cf. 'bee']	**si:p
toad (sapo)	hosk'a	o:ʔ 'frog'	o:ʔ 'frog'	*(h)oʔ	**woʔ
tomato (tomate)	tusay	tuθey	tuθay	*tusay	[piš(p)]
tomorrow (mañana)	kalame	kala:m	kala:m	*kalam	
tongue (lengua)	lekaw	lek'ab	lek'a:b	*lek'ab	[**a(ʔ)q']
tortilla (tortilla)	wakan	bakan	bakan	*bakan	**wah/**wa:x
tooth (diente)	kamaw	kamab	kamab	*kamab	[**e:h [KN]]
tortoise/turtle (tortuga)	pet pet	pet	pet	*pet	**pe:t^{y}/ *pe:ts 'large turtle' [K]
town,village (poblado, aldea)	mule	muleʔ 'handfulls'	mulkunal 'to gather' [A]	*mul-	
tree (árbol)	te	teʔ	teʔ 'stick, tree, wood'	*teʔ	**t̰e:ʔ
turkey (pavo)	k'asaw	k'aθaw 'guajolota'	k'aθaw	*k'asaw	
urine (orina)	panatika	tsik'	čik'al	*t̰ik'	

English (Spanish)	Chicomuceltec	Huastec (Veracruz)	Huastec (Potosí)	Proto-Huastec	Proto-Mayan
vine (bejuco)	č'a 'hammock'	č'a:h	ts'a:h	*č'ah	**k'ah(-am)
voice (voz)	tonakawihata	ka:w 'to speak, language'	ka:w 'word'	*kaw 'word, speech'	
wall (pared)	hen	he:n	hem 'sun dried brick wall' [A]	*hen	
water (agua)	ha yašha welam ha	ha? 'water' wal-ha? 'river'	ha? belal ha? 'running water?' [A]	*ha?	**ha?
wet (mojado)	patiš ach a wal	a:č'	a:ts' 'wet'	*a:č'	**ak' (to get wet) [K]
white (blanco)	sak-ni	θakni?	θakni?	sak-ni?	**saq
wife [cf woman] (esposa)	ušmal	ušum 'female, woman'	ušum 'woman'	*uš- 'woman, female'	**uš-/ *iš- 'woman, female'
wind (viento)	ik	ik' 'breeze, wind'	ik' 'breeze, wind'	*ik'	**i:q'
wings (alas)	pawaw		pabablek	*pabab	[**ši(:)k' 'wing']
woman [cf wife] (mujer)	ušum	ušum	ušum	*uš-um	**uš-/ *iš-
worm, maggot (gusano)	sum	θu:m	θu:m	*sum	
yellow (amarillo)	kan ni	k'anaw?	k'anaw? 'yellow maiz' k'anan [A]	*k'an	**q'an
yesterday (ayer)	awečič welčič	we?e:l	we?e:l	*we-	**e:wir

English (Spanish)	Chicomuceltec	Huastec (Veracruz)	Huastec (Potosí)	Proto-Huastec	Proto-Mayan
zapote (zapote)	itas	it'aθ 'banana'	it'aθ 'banana'	*it'as	
1	hun	hu:n	hu:n	*hun	**xu:n
2	ča te ew	ča:b	tsa:b	*čab	**ka? (b')-
3	oš te ew	o:š	o:š	*oš	**o:š-
4	če te ew	če:	tse:?	*če	**ka:ŋ-
5	wo te ew	bo:?	bo:?	*bo?	**ho?-
6	kak te ew	akak	akak	*akak	**wahq
7	huk te ew	bu:k	bu:k	*huk/*buk [cf. 4.1.26]	**huq
8	wašak te ew	wašik	wašik	*wašik/*wašak	**waqšaq-
9	wele te ew	bele:hu	bele:w	*bele-	**b'eleŋ-/ **b'eluŋ-
10	law te ew	la:huh	la:huh	*lahuh	**laxuŋ
	hun i lahu ['1 + 10']	la:hu-hu:n ['10 + 1]	lahuh-hu:n ['10 + 1]	*lahuh-hun/ *hun i lahuh ['10 + 1'/ '1 + 10']	
12	čaw i lahu ['2 + 10']	la:hu-ča:b ['10 + 2']		*lahuh-čab/ *čab i lahuh ['10 + 2'/ '2 + 10']	
13	oš i lahu [3 + 10]	la:hu-o:š ['10 + 3']		*lahuh-o:š/ oš i lahuh ['10 + 3/ '3 + 10']	
14	če i law ['4 + 10']	la:hu-če: ['10 + 4']		*lahuh-če/ *če i lahu ['10 + 4/ '4 + 10']	

English (Spanish)	Chicomuceltec	Huastec (Veracruz)	Huastec (Potosí)	Proto-Huastec	Proto-Mayan
15	wo-tew [cf. '5']/ o la te ew [the latter presumably borrowed, cf. oh-lah-uh (Tzu), olahu (Mam)]	la:hu-bo:ʔ ['10 + 5']			
16	kak-tew [cf. '6'/ o la te ew nam hun [presumably borrowed]	la:hu-akak ['10 + 6']			
17	huk-tew [cf. 7]/ o la te-ew nan ča te ew [presumably borrowed]	la:hu-bu:k ['10 + 7']			
18	wašak te ew [cf. '8']	la:hu-wašik ['10 + 8']			
19	bele-tew	la:hu-bele:hu ['10 + 9']			
20	hun inik [lit. '1 person']	hu:n inik [lit. '1 person']	hun inik [lit. '1 person']	*hun inik [lit. '1 person']	**winaq
21	hun inik nam hun ['20 + 1']	hu:n inik hu:n ['20 + 1']		*hun inik [nam] hun ['20 + 1']	
40	čaw inik ['two twenties']	ča:b inik ['two twenties']	tsab inik ['two twenties']	*ča:b inik ['two twenties']	
60	oš inik ['3 twenties']	o:š inik ['3 twenties']		*o:š inik ['3 twenties']	
80	če nek ['4 twenties']	če: inik ['4 twenties']		*če inik ['4 twenties']	

English (Spanish)	Chicomuceltec	Huastec (Veracruz)	Huastec (Potosí)	Proto-Huastec	Proto-Mayan
100	ho inik ['5 twenties']	hu:n boʔ inik ['5 twenties']	boʔ inik ['5 twenties']	*(hu:n) boʔ inik ['5 twenties']	
120	ho inik nam jun inik ['5 twenties + 1 twenty]	akak inik ['6 twenties']			
200	ča te ta ho inik ['2 × 5 twenties']	la:hu inik ['10 twenties']			
300	oš ta ho inik ['3 × 5 twenties']	oš bo inik ['3 × 5 twenties]			
400	če ta ho inik ['4 × 5 twenties']	če: bo:ʔ inik ['4 × 5 twenties']			

Appendix IV

Phoneme co-occurrence constraints in Huastec CVC morphemes: vocabulary charts of occurring combinations

The following charts list examples of vocabulary where any combination of plain and glottalised pairs of affricates and stops (not including nasals or bilabials), as well as *š* and *θ* occurs in the same morpheme (CVC) in the Potosí and in the Veracruz dialects of Huastec. Charts are arranged according to the initial consonant of possible CVC combinations. For the morpheme form C_1VC_2, the vertical axis for each chart indicates the first consonant in the morpheme, the horizontal axis indicates the second consonant in the morpheme. Gaps indicate non-occurring forms.

Potosí Huastec
tVC

	t	t'	ts	ts'	č	č'	θ	š	k	k'
ti							tiθ 'fart'		tiktim 'roasted green corn ear'	tik'el 'until now' tik'in 'me'
te							teθuwal 'touch gently'	teš k'eyal 'to button, clasp'	tekeθ 'very, exact'	tek'at 'cooked'
tu	tutublec 'hoof'			tuts'ul crouched			tuθik'lab 'to bar, hold up'		tuku 'us'	
to				tots'k'ila:b 'to bar'			toθey 'numbed'	tošoš 'capstan, windlass'	tokat 'no more, only' tokow 'cloud'	to:k'lab 'debt' tok'oθ 'trust-worthy' to:k'oyal 'reply'
ta	ta:t 'palm mat' tata:? 'you [polite & informal] tatle? 'step-father'		ta:ts 'there'				taθiyal 'slip, slide'	ta:š ta:l 'there he comes'	takab 'comal (flat earthenware pan for cooking maize cake)' taka:l 'touch' taku:l 'white ant'	

Potosí Huastec
t'VC

	t	t'	ts	ts'	č	č'	θ	š	k	k'
t'i		t'i:t' 'wound'			t'ičok'la:b 'arrow'	t'ič'k'oyal 'to shoot an arrow'	t'iθab needle' t'iθiθ 'intestine'	t'išk'oyal 'give a little to eat'	t'ikonθal 'rebound'	tik't'o:l 'palpitating' t'ik'ts'on 'jump'
t'e		t'et'ma? 'mourner'								t'ek'a:l 'shoot arrow' t'ek'at 'high'
t'u		t'ut'ul 'gutter, drain'			t'u:č 'tale-bearing' t'učat 'full' t'učwi:la:b 'spike of grain, peg		t'uθub 'mountain grape' t'uθu:l kete:l 'squatted'		t'ukuθ 'drip'	
t'o	t'ot 'buzzard'	t'ot'bila:b 'scab' t'ot'oy 'cicatrice'				t'oč'ti:l 'walking and moving head forwards and backwards'			t'oknal 'colote (cylindrical basket)' t'okat 'pure, clean'	t'ok'baθ 'encircled'
t'a									t'aka:l 'to wash' t'akna:b 'narrow basket made of bindweed'	t'ak'a:m 'palate' t'ak'ne:l 'cut, chopped'

Potosí Huastec
tsVC

	t	t'	ts	ts'	č	č'	θ	š	k	k'
tsi			tsitsiy 'type of tree'							
tse			tsetsbaθ 'divided, split'						tsekel 'to tire'	
tsu										
tso			tsotsoblek 'kick'						tsok 'gun, rifle' tso:k tokow 'mist' tsokoy 'dark-coloured'	
tsa			tsatsaʔ 'tree-cactus (cactus and fruit)'						tsakam 'infant, son, daughter' tsaku:l 'wet' tsukuy 'stamen'	tsak' 'tlapechtli' (structure of twigs or cane joined in parallel, used as bed, shelf or table) tsak'bin 'sweat'

Potosí Huastec
ts'VC

	t	t'	ts	ts'	č	č'	θ	š	k	k'
ts'i			ts'itsin 'bird'						ts'ikoθ 'wide'	ts'ik'a:l 'sting, prick' ts'ik'a:č 'girl, daughter'
ts'e										
ts'u				ts'uts'pap 'uncle' ts'uts'ublek 'kiss [n]'	ts'u:č 'quarter'			ts'u:š 'owl'	ts'ukliθ 'freckled'	ts'uk'u 'cold (corpse)'
ts'o		ts'ot'k'oš 'adhere (one thing to another)'		ts'ots'on 'dew'				ts'ošoš 'tortilla weevil'	ts'ok 'thrush' ts'okha? 'water that has washed the metate (grindstone for maize)' ts'okowal 'put (hands) in water'	
ts'a		ts'a:t' 'gadfly' ts'at'el 'stick, adhere'						ts'ašayal 'follow behind'	ts'ak 'flea' ts'akha? 'pool of water'	

Potosí Huastec
čVC

	t	t'	ts	ts'	č	č'	θ	š	k	k'
či					či:č 'comes' čičaθ 'quebrache' (tree)		čiθ 'alegría' (plant) čiθan 'virgin'	čiši:mlab 'clearing'	čika:l 'burn'	čik'al 'urine' či:k'linal 'oxide'
če										
ču					čuč 'coyote' čučim'fir tree'	čuč'um 'toasted tortilla'	čuθe:l 'dawn'		čukul 'stomach' čukuyal 'sew'	
čo										
ča										čak'wa:l 'flatten, crush'

Potosí Huastec
č'VC

	t	t'	ts '	ts'	č	č'	θ	š	k	k'
č'i					č'ičab 'comb'					
č'e										
č'u					č'učub 'thumb'					
č'o										
č'a										č'ak'ay 'tasteless'

Potosí Huastec
θVC

	t	t'	ts	ts'	č	č	θ	š	k	k'
θi		θit'a:l 'to heat' θit'om 'healer, docter'			θičeče:l 'covered with bristles'				θika:l 'strain, filter, bleach'	θik'a:l 'absorb'
θe	θeteblab 'wing' θete? 'gnat'						θeθmaθ 'pale colour'			θek'u? 'species of lizard'
θu		θut' 'bat'			θuča:l 'write'					θuk'uk' 'Indian fricassee'
θo									θokob 'zocohuite (tree)'	θok'ne 'hoarse' θok'ow 'porous'
θa					θači? 'hen flea'		θaθat 'delicate'		θakni? 'white' θaku:m 'artisan'	θak'čok' 'egg' θak'uy 'grey hair'

Potosí Huastec
šVC

	t	t'	ts	ts'	č	č'	θ	š	k	k'
ši	ši:to:liyal 'conceal, hush up'			šits' 'blood'				šišteʔ 'sangregado (tree)'	šiko:b 'bee, wasp sting'	
še	šetutu:l 'rim, edge'	šet'k'eyal 'stain, pollute'		šets'e:m 'tick'					šekla:l 'to punch, bore' šeklek 'leaf'	šek'ab 'spear'
šu			šutsun 'ear'	šuts'bayal 'to fold, crease'	šučik'la:b 'plug, stopper'				šukuku:l 'sick, sad'	šuk'uyal 'to mix'
šo	šotol 'tie with a loose knot'	šot'el 'be offended'		šo:ts'an 'folded, creased'						
ša	šataʔ 'absent'							šašaʔ 'you [polite]'	šakab 'pace, step' šaktem 'ride astraddle'	šak'ub 'jacube (cactus)'

Potosí Huastec
kVC

	t	t'	ts	ts'	č	č'	θ	š	k	k'
ki	kital 'beast of burden' kitpoθ 'raised high'			kits'oyal 'stripe, streak'			kiθbayal 'to complete' kiθib 'sand'			
ke	kete:l 'seated'							kešat 'wide'	kekbayal 'to hack, notch'	
ku	kutu:l 'bent, lowered'		kutsu:mteʔ 'hooked stick for collecting things'					ku:š 'back (body)' ku:šuyal 'sustain, suffer'	kukuʔla:b 'roof'	
ko	kotbilab 'cut, incisicion' kotob 'violin bow, precipice'			kots'iyal 'scrape, scratch'		koč'očik 'hooked'		ko:šbal 'breathe (animals)	kokoko:l 'cackling'	
ka	katmaθ 'carved, sculpted'	kat'ut 'tortilla made from dry dough'	katsi:in 'marrow'				kaθay 'rasping, rough'	kašiy 'fetid smell'	kakay 'the smell of burnt things	

Potosí Huastec
k'VC

	t	t'	ts	ts'	č	č'	θ	š	k	k'
k'i		k'it'iy 'slippery'		k'its'a:l 'join, press together'	k'ič 'vapor from the earth' k'i:ča: 'sun, day'					
k'e		k'et'ač 'inverted, false' k'et'a:l 'extend, peel'		k'ets'al 'press, tread on' k'ets'e:šbal 'tilt, tip'				k'eše? 'humourous'		
k'u	k'utlab 'nest'	k'ut'lom 'obstruction' k'ut'umtal 'throat'		k'uts'ban 'suffocated' k'uts'ul 'bent, curved'	k'učiči:l 'rubbed, threshed'		k'uθay 'rag (plant hanging from branches like rags)'			k'uk'manal 'grow'
k'o		k'ot'el 'grow', kot'i:m 'naked'			k'oč 'broody' k'oče:l 'animals fattened at one time'	k'oč'k'o:l 'cluck, cackle'	k'oθow pet'el 'odor of fish'			k'ok'om 'straw, dry thing' k'ok'ots 'ear of green corn'
k'a		k'at'uwal 'chew, bite'	k'atsenek 'rotten' k'atsub 'humourous'				k'aθat 'mounted, raised'			k'a:k' 'hot' k'ak'aθ 'ugly'

Veracruz Huastec
tVC

	t	t'	ts	ts'	č	č'	θ	š	k	k'
ti							tiθ 'fart'		tikla? 'put mouth down'	
te										tek'at 'cooked'
tu	tut 'hearth, fireside' tutub 'tree trunk' tutu? 'meat'						tuθna? 'kneel on' tuθey 'tomato'		tukum 'squirrel'	
to	totoš 'instrument for spinning'						toθey 'become numb'	tošik' la:b 'bar'	tokot 'agreeable, similar' tokow 'cloud'	tok'oy 'accept' to:k'oy 'reply'
ta	ta:t 'palm mat' tata:? 'father'				tačan? 'there'		taθiy 'move'	ta:šk'a 'restore'	taka? 'touch' takuy 'cull' takab 'comal (pan for cooking maizecake)'	

Veracruz Huastec
t'VC

	t	t'	ts	ts'	č	č'	θ	š	k	k'
t'i							t'iθey 'cease' t'iθab 'needle' t'iθiθ 'instestines'	t'išaʔ 'flick with finger' t'išoy 'besplatter'	t'ikon 'jump'	t'ik'til 'walk on balls of feet with heels high'
t'e		t'et'naʔ 'sit on' t'et'eʔ 'delicate person'				t'eč'k'iy 'drop an object on another'				t'ek'at 'tall, high'
t'u		t'u:t' 'rainwater'				t'uč'ik' 'object used as a weight'	t'uθub 'mountain tree' t'uθu:l 'seated high up in order to see'	t'ušu:l 'pointed, crested' t'ušey 'lump on head after blow'	t'u:k 'pipe for water to drain out of hand-cart' t'ukuy 'to drip'	
t'o	t'ot 'buzzard'	t'ot'oy 'appearance of extreme age'					t'oθoy 'itch'	t'ošoy 'rap with knuckles'	t'okt'ok 'primavera (bird)' t'oknal 'basket'	t'ok'bay 'encircle'
t'a							t'aθk'uw 'to trip'	t'ašiy 'splash with dirt, scatter'	t'akiy 'chop at ' t'akaʔ 'wash'	t'ak'am 'palate' t'ak'iy 'cut (machete)'

Veracruz Huastec
tsVC

	t	t'	ts	ts'	č	č'	θ	š	k	k'
tsi			tsi:tsič 'already came'		tsi:č 'to come'		tsiθan 'girl' tsiθ 'pigweed'		tsika? 'to burn'	tsik' 'urine'
tse										
tsu			tsuts 'ghost' tsutsem 'ashy dirt on body after working in brickworks or milpa' tsutsu:θa? 'give the breast (suckle)'	tsuts'um 'toasted tortilla'			tsuθey 'to dawn'		tsukul 'stomach' tsukuy 'to sew'	
tso										
tsa										

Veracruz Huastec
ts'VC

	t	t'	ts	ts'	č	č'	θ	š	k	k'
ts'i			ts'itsik akan 'toe'							
ts'e										
ts'u			ts'utsub 'spike or ear of grain' ts'u:tsbiy 'point with finger' ts'u:ts 'quarter'	ts'uts'k'iy 'stop up, cover, refill' ts'uts'ik' 'object used as a stopper'						
ts'o										
ts'a										

Veracruz Huastec
čVC

	t	t'	ts	ts'	č	č'	θ	š	k	k'
či					či:čiy 'large tree with edible fruit'			čišiy 'weed corn fields' čišoy 'empty a container of liquid on something'	čikente? 'mushroom' čikoy 'butt with the head'	
če					čečbaθ 'with many stems/ shoots'				čekey 'be tired'	
ču										
čo					čočob 'hind foot'				čo:k lay? 'type of nettle' čokoy 'brown'	
ča	čatal 'sword of loom'				čača? 'tree-cactus flower'				čakni? 'red' čakam 'little thing' čaka:m 'son, daughter'	čak'ib 'sweat'

Veracruz Huastec
č'VC

	t	t'	ts	ts'	č	č'	θ	š	k	k'
č'i					č'ičin 'bird'				č'ikiy 'itchy'	č'ik'a? 'to sting'
č'e										
č'u						č'u:č' 'brother of woman' č'u:č'ub 'a kiss'		č'u:š 'owl'	č'uk 'corn weevil'	č'uk'č'u:l 'a pulsing pain'
č'o						č'oč'on 'dew'		č'ošoš 'very small insect'	č'ok 'thrush'	č'ok'oy 'place inside of'
č'a		č'at'a? 'adhere'						č'ašik' 'chewing gum' č'ašk'il 'to shine, thunder'	č'ak 'flea' č'akba? 'to raise' č'akna? 'use as a place for putting something on'	č'ak'ay 'to dry something watery, like mud'

Veracruz Huastec
θVC

	t	t'	ts	ts'	č	č'	θ	š	k	k'
θi		θit'ey 'to dry' θit'k'oy 'shoot a slingshot'	θitsey 'hair to stand on end'						θikey 'to dry' θika? 'to strain, filter'	θik'pan 'to choke' θik'a? 'swallow water when swimming'
θe	θetey 'to open (flower)'	θet'et'e:l 'nervous'					θeθna? 'fornicate'			θek'ek'e:l 'sound of dripping water during rain'
θu		θut' 'bat' θut'piy 'to knot'	θutsa? 'to write' θutse? 'woven' θu:tsum 'to sigh'						θuk 'tree with edible pods' θukuy 'chop with machete'	θuk'uθ 'confusing, complicated'
θo		θot'ey 'vaporise'							θokob 'zapotillo (tree)'	θok'pot 'type of mountain fruit' θok'ow
θa			θatsuw 'to fish'				θa:θat 'delicate'		θakni? 'white' θaku:m 'carpenter'	θak'uy'cane'

Veracruz Huastec
šVC

	t	t'	ts	ts'	č	č'	θ	š	k	k'
ši	šiti:l		šitsaʔ 'knead dough the second time'			šič' 'blood'			šikaʔ 'prick, sting'	
še	šete:l 'earthen stewing pan' šetey 'make an opening bigger'					šeč'em 'tick'		še:š 'corn butterfly'	šek 'leaf' šeket 'shirt'	šek'aʔ 'slice'
šu	šutu:l 'shaped like small umbrellas'		šutsik' 'wedge'	šuts'ki:l 'wedge, paving stone'	šučun 'ear'	šuč'ey 'become wrinkled'			šukey 'have goosebumps'	šuk'uy 'mix, stir'
šo	šoto:l 'solid (eg wood)'					šoč'ow 'to wrinkle'			šokoko:l 'bubbling' šokey 'jocoque (Huastecan yoghurt)'	šok'oy 'peck (bird)'
ša									šakab 'paces'	šak'ub. 'jacube (cactus)'

Veracruz Huastec
kVC

	t	t'	ts	ts'	č	č'	θ	š	k	k'
ki	kital 'a load'			kits'iy 'to squeak'			kiθa:b 'sibling' kiθat 'all' kiθib 'sand'			
ke		ket'ut'u:l 'noise of mice eating certain things'		kets'me: 'become squeaky'	kečuy 'weed plants individually' kečkuč 'gristle'	keč'ke:l 'noise of tendons chewed by dog' keč'ey 'to eat'		kešey 'become enlarged'	kekbay 'try to choke up something stuck (dog)'	
ku	kutku:l 'way a lizard moves, nodding head' kutu:l 'crouched'		ku:tsuw 'to spin'		kuču? 'small parrot'			kuš 'spine' kušuy 'sustain, suffer'	kukey 'custard apple' kuku? 'dove'	
ko	kotob 'hand-saw' kotoy 'cut'		kotsi (from kotoy-tsi) 'cut leaves'		kočey 'bend, go crooked'	koč'iy 'to rip, tear'	koθow 'harsh, sharp'	koško:l 'walk of a big bird '	kokoko:l 'clucking'	
ka	katiti:l 'lumpy pasture ground'			kats'uw 'break (something delicate)'	kačkumay 'to toast'	kač'pa? 'break branches'	kaθuw 'cut, break'	kašuw 'cut hair' kašiy 'rotten'		

Veracruz Huastec
k'VC

	t	t'	ts	ts'	č	č'	θ	š	k	k'
k'i		k'it'ka? 'raise the tail'	k'its'a: 'day' k'itsow 'heat'	k'its'pa? 'kill a flea between the fingernails'		k'ič'a? 'press on with hands' k'ič'k'oy 'detain'	k'iθ 'thorn'			
k'e	k'ete:l 'seated'	k'et'ats 'crucified' k'et'ey 'warp'				k'eč'e:l 'bending back with back forward'				
k'u	k'ututu:l 'clucking'	k'ut' 'mud' k'ut'uw 'swallow'	k'utsitsil 'smoking'		yab ki k'učun 'be quiet while someone talks'	k'uč'e? 'tree with edible pods' k'uč'uw 'to fold, crease'	k'uθey 'hay' k'uθk'u:mil 'clothing'			
k'o	k'otk'o:l 'feed chickens'	kot'i:n 'get naked' k'ot'k'o:l 'stare of a dangerous animal'	k'otsey 'become fat'	k'ots'k'om 'clucking'			k'oθow 'musty, rancid smell'			k'ok'oč ear of green corn'
k'a		k'at'uw 'to bite'		k'ats'pa? 'to crush, burst'	k'ačey 'to rot' k'ačuw 'knead'	k'ač'uw 'flatten' k'ač'iy 'to weigh'	k'aθaw 'turkey' k'aθiy 'to rise'			k'a:k' 'hot' k'ak'aθ 'fearful, frightful'